TECHNOLOGY DEPT.

MARCH, 1953

Telephone and Management Engineer

PUBLIC LIBRARY
MAR 23 1953
DETROIT

THE NATIONAL TELEPHONE MAGAZINE

Featuring In This Issue—

- Design For A Good Rate Schedule, *by Helene C. Bateman*
- The Markets For New Capital, *by A. C. Kimber*
- Modern Central Office Maintenance, *by John S. Reed*
- Management Forum
- Washington Bureau Reports

L. M. BERRY AND CO.

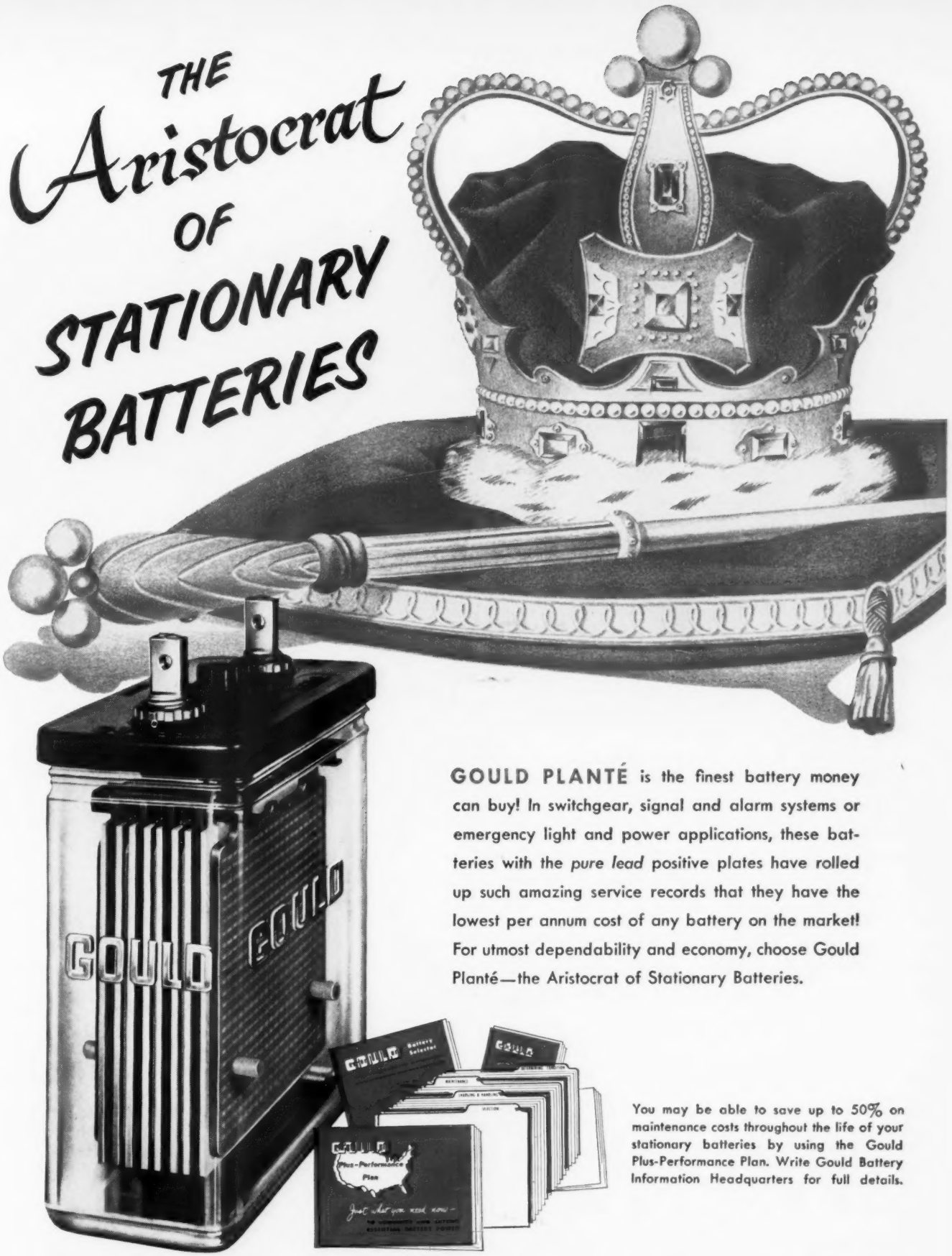
telephone directory advertising *EXCLUSIVELY*

Over 650,000 Business Telephone Customers for more than 200 Independent and Bell Companies are now being contacted by our Sales Representatives each year.

GENERAL OFFICES • HULMAN BUILDING, DAYTON 2, OHIO • MICHIGAN 7421

BRANCH OFFICES in Birmingham, Alabama • Bristol, Chattanooga, Memphis and Nashville, Tennessee • Harrisburg, Pennsylvania • Jackson, Mississippi Kansas City, Kansas • Louisville, Kentucky • Milwaukee, Wisconsin • New Orleans, Louisiana • Rochester, New York • Tampa, Florida • Warsaw, Indiana

THE Aristocrat OF STATIONARY BATTERIES



GOULD PLANTÉ is the finest battery money can buy! In switchgear, signal and alarm systems or emergency light and power applications, these batteries with the *pure lead* positive plates have rolled up such amazing service records that they have the lowest per annum cost of any battery on the market! For utmost dependability and economy, choose Gould Planté—the Aristocrat of Stationary Batteries.

You may be able to save up to 50% on maintenance costs throughout the life of your stationary batteries by using the Gould Plus-Performance Plan. Write Gould Battery Information Headquarters for full details.

GOULD *Industrial Batteries*

GOULD-NATIONAL BATTERIES, INC., TRENTON 7, N. J.

Always Use Gould-National Automobile and Truck Batteries

The National Telephone Magazine

Telephone Engineer and Management

RAY W. SMITH
Editor

ROY F. SMITH
Advertising Director

DON C. SORENSEN
Advertising Manager

JOHN G. REYNOLDS
Managing Editor

VIRGINIA McCOLLUM
Production Manager

ROLAND DAVIES
FRED HENCK
Washington Editors

ALBERT W. KIMBER
Financial Editor

BILL CORMAN
Small Company Editor

JOHN S. REED
Technical Advisor

E. E. GENTRY
MRS. W. L. FAIR
PHIL GLANZER
JAMES A. BOYD
RICHARD ALLEN
Correspondents

West Coast Representatives
BRAND & BRAND
1052 W. 6th St.
Los Angeles, Calif.

MARCH, 1953 VOL. 57, NUMBER 3

Contents

ARTICLES

Editorial — "Watering The Utilities Down"		29
Washington Bureau Reports	Roland Davies, Fred Henck	33
Design For A Good Rate Structure	Helene C. Bateman	35
The Markets For New Capital	A. W. Kimber	40
Modern Central Office Maintenance	John S. Reed	43
The Management Forum	John G. Reynolds	47
Minnesota Convention Report	John Withy	50

FEATURES

Across The Editor's Desk		6
Telephone Engineer Newsletter		9
Industry News Briefs		16
Coming Conventions		34
Questions & Answers	Jay G. Mitchell	54
A. T. & T.'s 1952 Report		60
REA Allocation Summary		68
Suppliers' News Briefs		86
The Back of The Book	John G. Reynolds	110

DEPARTMENTS

Professional Cards	96
New Products' Showcase	98
Buyers' Guide	98
Classified Advertising	100
Advertisers' Index	109

FRONT COVER

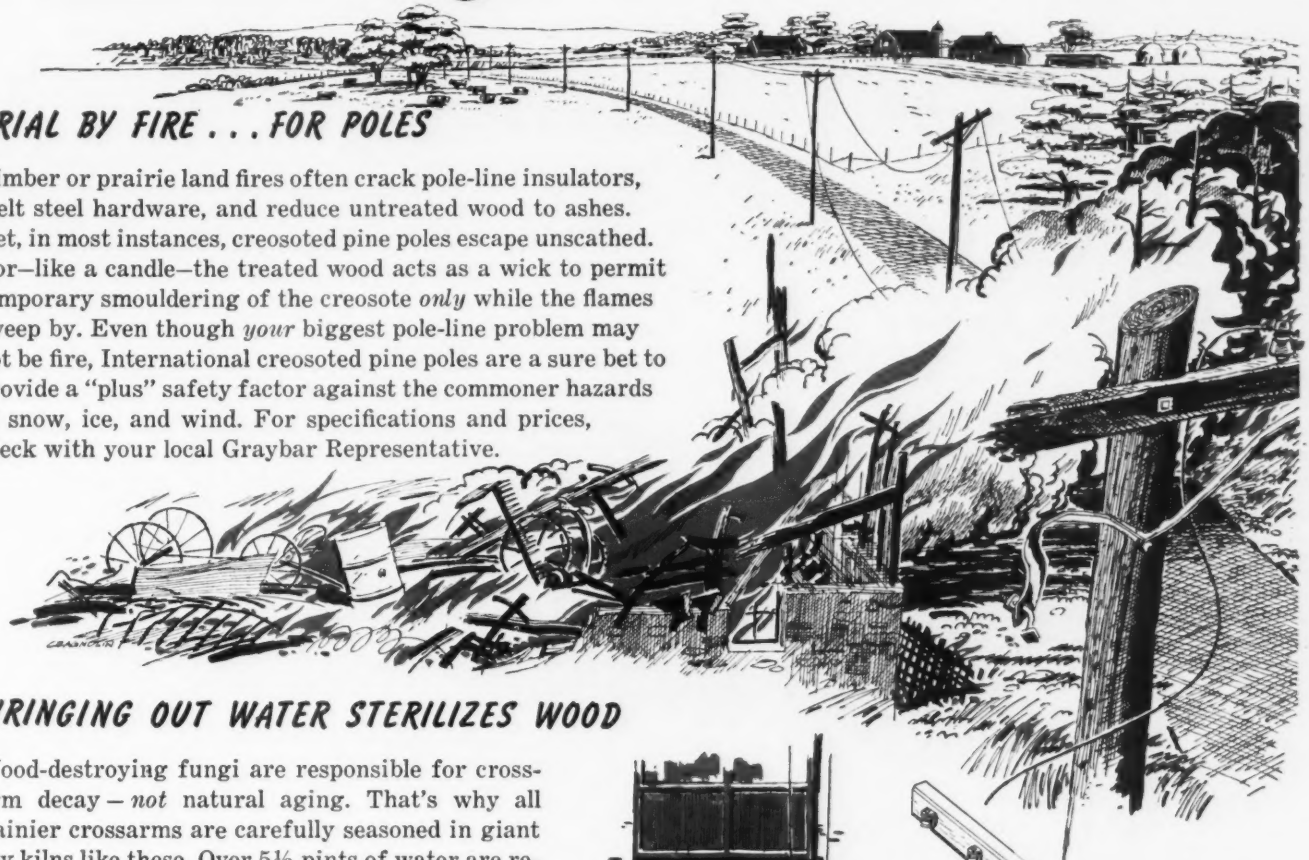
Four new directors of the Minnesota Telephone Association greet their new president, HAROLD BOLLINGER of Waconia, manager of the Pioneer Telephone Co. From left to right are P. M. FERGUSON, JR., Mankato Citizens Telephone Co.; C. F. MARVIN, Zumbrota Telephone Co.; GLENN J. DWELLE, Dwelle Telephone Co., Waconia; BOLLINGER; and KENNETH JOHNSON, Bricelyn Mutual Telephone Co. The directors are posed in front of the giant dial telephone which the Mankato company provided as a lobby display during the convention at Hotel St. Paul, St. Paul.

Published monthly by Telephone Engineer Publishing Corp. 7220 Sheridan Road - Phone Rogers Park 4-3040 - Chicago 26, Illinois.

Volume 57, Number 3. Published monthly by Telephone Engineer Publishing Corp. Office of Publication, Rochelle, Ill. Executive and Editorial Office, 7720 Sheridan Road, Chicago, Ill. Subscriptions: U. S., Cuba, Mexico, $3.00 per year; Canada $3.50 in all other countries, $5.00. Single copies, U.S.A. 35 cents. Entered as second class matter at the post office at Rochelle, Ill. under the act of March 3, 1879.

COPYRIGHT 1953 BY TELEPHONE ENGINEER PUBLISHING CORP.

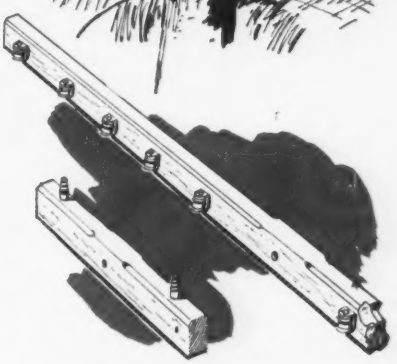
GraybaR TELEPHONE NEWS



TRIAL BY FIRE . . . FOR POLES

Timber or prairie land fires often crack pole-line insulators, melt steel hardware, and reduce untreated wood to ashes. Yet, in most instances, creosoted pine poles escape unscathed. For—like a candle—the treated wood acts as a wick to permit temporary smouldering of the creosote *only* while the flames sweep by. Even though *your* biggest pole-line problem may not be fire, International creosoted pine poles are a sure bet to provide a "plus" safety factor against the commoner hazards of snow, ice, and wind. For specifications and prices, check with your local Graybar Representative.

WRINGING OUT WATER STERILIZES WOOD



Wood-destroying fungi are responsible for crossarm decay – *not* natural aging. That's why all Rainier crossarms are carefully seasoned in giant dry kilns like these. Over 5½ pints of water are removed from an average 3½" x 4½" x 8' Rainier crossarm. High kiln temperatures kill all wood fungi, while reduction of wood moisture content to 12% prevents new growth.

Many Graybar customers consistently get "above average" service life from Rainier arms.

Samuel F. Morse placed the first order for poles in March 1844. 8" at the butt and 24' in length, these sturdy chestnut poles were used for the B & O's original telegraph installation. The delivered cost – 98¢ each.

Though prices are higher today, Graybar-distributed National cedar and fir poles weigh only half as much as the once-standard chestnut. Whether you specify full length or butt-treated poles you're sure to save money in handling and installation costs.

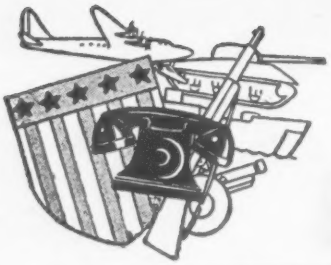
NEED A 2-PIN OR DEAD-END CROSSARM?

If not, chances are we'll have it when you need it. That's one of the nice things about doing business with Graybar. Remember, too, that on a single order you can obtain hardware, pins, and miscellaneous items—everything you need for pole-line extension and maintenance, as well as central station equipment. 202-223

Call Graybar first for...

GRAYBAR ELECTRIC CO., INC.
Executive Offices:
Graybar Building, New York 17, N. Y.

IN OVER 100 PRINCIPAL CITIES



Across The EDITOR'S DESK

THE *Ahoskie (N. C.) Herald* recently praised President L. W. HILL of the Carolina Telephone & Telegraph Co., Tarboro, N. C., for an address presented to a group assembled at the company's new business home in Ahoskie.

"President Hill", the paper stated, "and his set of figures on the phenomenal expansion of the telephone business in the company's area, and more particularly at Ahoskie, presented a story almost as fabulous as one of the late Horatio Alger's make-believe. The difference, of course, is that what Mr. Hill and his figures said was on the record and the genuine thing.

"Of course, we are sharing with the company a high degree of pride over the switch from the old to the new dial system at Ahoskie. All Ahoskie and surrounding communities served by this exchange are proud of the company's accomplishments, and they are fully appreciative of the investment that has gone into the new exchange and dial system.

"There is a mutuality of interests between the company and the public it serves, and neither can do its best without the sympathetic and close cooperation of the other. As we mingled with representatives of both groups at the ceremonies we were reminded that here was a good show of evidence that such a spirit does exist in Ahoskie. . . "

"TELEPHONE operation runs in the family."

That's what OTTO F. BIEKER, 63, Earling, Ia., said as he marked his 45th year with the *Earling Mutual Telephone Co.*

Mr. Bieker, who is now supervisor, has been with the organization all except the first three years of its existence. It was in 1904 that the community interest was purchased from the Defiance Telephone Co.

Explaining the family interest in telephone operation, Mr. Bieker pointed out that his brothers, August and Henry, both spent their working lives in telephone work in the vicinity.

"And my son, Jerry, now operates the Defiance Telephone Co.," he said.

Besides the usual ups and downs encountered in any business, Mr. Bieker has had only one serious work-connected accident during his phone career.

"Thirty-seven years ago I was at work up on a pole when a companion forgot I was there and fired at some birds. Some of the shots struck my face and arm and I still have the scars," Mr. Bieker said.

Although his work has taken up a good share of his time, Mr. Bieker has also made time for civic activities. A former town councilman, he served as mayor for six terms and was the first president of the Earling Commercial Club.

AFTER reading that Telephone Engineer Publications are now being printed at Rochelle, Ill., our good friend OTTO WETTSTEIN, JR., Orlando, Fla., sent us an interesting clipping. From it we were pleased to learn that in 1896 Mr. Wettstein built Rochelle's first telephone exchange. From Rochelle, Mr. Wettstein went on to construct 30 exchanges in Iowa, Nebraska and Missouri. In 1912 he moved to Florida and founded the Florida Telephone Corp. which now operates 20,000 telephones in 28 exchanges.

OUR BEST wishes go to FRED W. BECHDOLT, manager of the Telephone Service Company's Defiance, Ohio, exchange, who recently retired after 55 years in the communications industry.

Mr. Bechdolt first became directly associated with telephone work in 1898 when he was employed as a lineman with the Jackson Center Telephone Co. in Shelby County, Ohio. That was just 21 years after Alexander Graham Bell had patented the telephone.

After three years service at Jackson Center, Mr. Bechdolt joined a crew which constructed the Minster (Auglaize County, Ohio) Telephone System. In 1911 he took a job as a lineman with the Wapakoneta Telephone Co.

In 1918, Mr. Bechdolt moved to Waynesfield where he became plant superintendent and later manager of the Waynesfield Telephone & Telegraph Co. Early in 1933, he was sent by the Telephone Service Co. to Ashville, N. Car., where he temporarily managed the Alleghany Telephone Co., which at that time included 17 exchanges. Later in the same year he was recalled and was put in charge in Defiance, Ohio.

Mr. Bechdolt watched the subscriber list in Defiance grow from 1,882 in 1934 to 4,566 today. To handle this increase, the company now possesses eight toll boards instead of the former three.

Telephone Engineer

HANDY WAY TO SUBSCRIBE

Telephone Engineer PUBLISHING CORP.
CIRCULATION DEPARTMENT,
7720 N. Sheridan Road, Chicago 26, Ill.

Please enter my subscription to FORTNIGHTLY TELEPHONE ENGINEER and TELEPHONE ENGINEER & MANAGEMENT for one year (24 issues) and send bill to me. (U. S. and its possessions $3, Canada $3.50, Other countries $5.00.)

Name .....

Title .....

Company .....

City ..... **Zone** ..... **State** .....

Exide-Manchex BATTERIES

for all applications in telephone service

Whatever the application, you can always count on Exide-Manchex Batteries. Back of them are years of progressive research-engineering to provide you with a product that adequately meets all telephone battery needs. In Exide-Manchex Batteries you get:

POSITIVE OPERATION: Dependable performance for all telephone battery requirements—central office and private branch exchange equipment.

ADEQUATE RESERVE POWER for emergencies beyond normal needs.

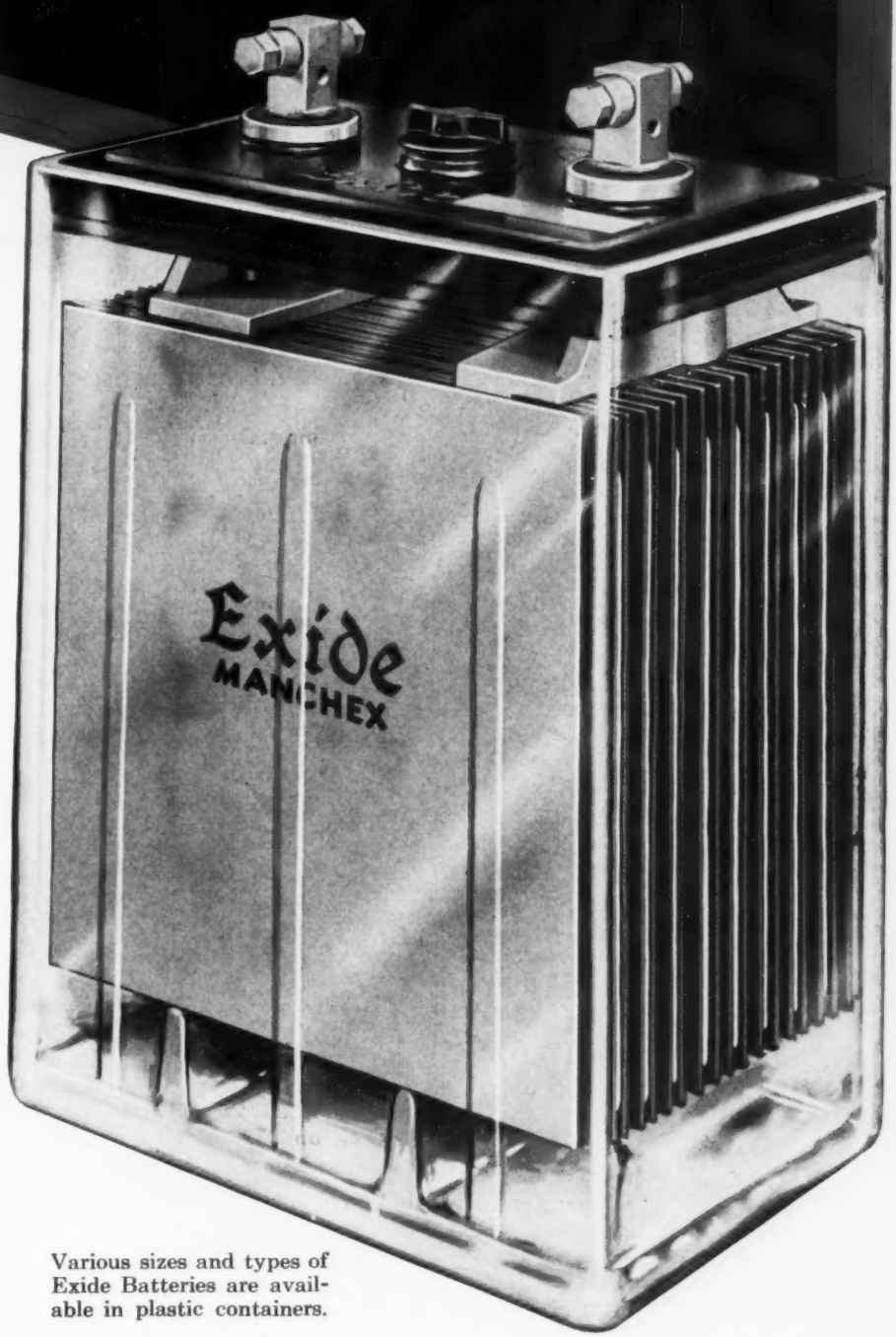
LOW OPERATING COST: Extremely low internal resistance.

LOW MAINTENANCE COSTS: Water required about twice a year. No change of chemical solution needed during life of battery.

LOW DEPRECIATION: Sturdy, long-life construction, which includes the exclusive manchester positive plate.

GREATER CAPACITY in a given amount of space avoids overcrowding of equipment.

THE ELECTRIC STORAGE BATTERY CO.
Philadelphia 2
Exide Batteries of Canada, Limited, Toronto



Various sizes and types of Exide Batteries are available in plastic containers.

"EXIDE" & "MANCHEX" REG. T.M. U.S. PAT. OFF.

1888...DEPENDABLE BATTERIES FOR 65 YEARS...1953

New TELEPHONE TERMINALS FOR *Plastic Cable*

SAVES

INSTALLATION

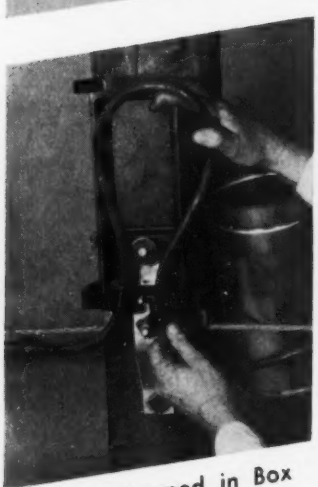
TIME

MONEY

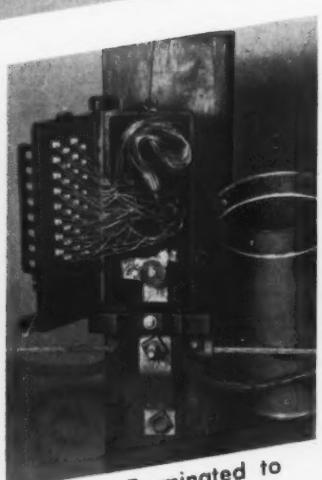
LABOR

Would you like to simplify the difficult, expensive and time consuming operation of cable splicing? . . . You can, with RT&E's new type MP Cable Terminal. This new terminal is designed for use with plastic insulated and jacketed cables . . . Can be installed by a competent lineman in half the time, without special tools or extra materials, saving up to 50% in labor . . . Accommodates up to 101 pair cable and is arranged for terminating 6, 11, or 16 pair . . . Its loop-thru character permits the count to be changed at any time without reopening the cable . . . Provides an ideal test, check and cut-in point . . . Extremely corrosive resistant.

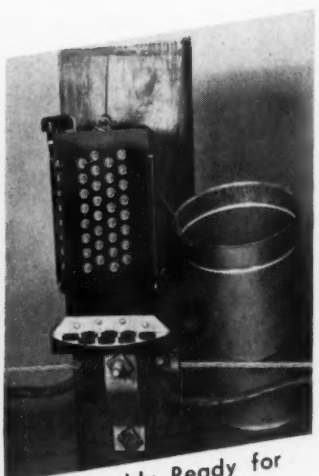
As simple as this . . .



• Cable Looped in Box



• Pairs Terminated to Face Plate



• Assembly Ready for Drop Wires

• Completed Installation

WRITE TODAY FOR BROCHURE

632 N. EIGHTH ST.
MILWAUKEE 3, WIS.

RT&E Co.

BRANCH PLANT:
WAUKESHA, WIS.

NEWSLETTER
TELEPHONE ENGINEER

Fortnightly TELEPHONE ENGINEER ★ TELEPHONE ENGINEER AND *Management*

ON THE 1st OF EACH MONTH ON THE 15th OF EACH MONTH

NEWSLETTERS *on Alternate Weeks*

March 15, 1953

Dear Sir:

Users of controlled materials have been notified by National Production Authority (NPA) not to file applications for allotments for 3rd quarter of 1953 or to file for supplemental allocations for 2nd quarter of 1953.

* * *

Securities Exchange Commission (SEC) announced securities offered for cash sale by communications corporations in United States last year amounted to $824,000,000, or 9% of total distribution of corporate securities for year. 1952 figure is highest reached by communications industry since 1948, when $902,000,000 in securities was offered. 1951 total was $612,000,000.

SEC estimated that communications companies obtained over 50% of their requirements for 1952 expansion programs for plant & equipment in securities market. 50% figure contrasts with 60% mark among electric & gas companies & 20% among manufacturing companies.

* * *

American Tel. & Tel. Co. rang up new highs in gross revenues, assets & service in 1952, Cleo F. Craig, pres., reported. Revenues of Bell System topped $4 billion last year, compared with $3.6 billion in 1951. Net earnings were equal to $11.45 per share, against $11.76 in previous year, on increased number of outstanding shares. Total assets of system reached $10.7 billion, up about $1 billion from 1951. During year, Bell System added about 2 million telephones, & now has 39.4 million in operation, Mr. Craig said.

* * *

Arkansas Public Service Commissioner Howard Gladden's resignation from state regulatory body, effective Feb. 28, has been accepted by Governor Francis Cherry. Commissioner Gladden had been active in NARUC affairs since his appointment to Arkansas Commission in 1950, & was recently named to Executive Committee of national association.

* * *

Violations of overtime pay provisions of Fair Labor Standards Act were chief cause last year of back wage liabilities for firms in Communication Industry, according to 1952 annual report of U.S. Labor Department's Wage & Hour & Public Contracts Division. Report shows that employers in communications industry paid $149,935 in back wages to 1,170 employees, as result of Wage & Hour Division's activities. Sum does not include amounts awarded to employees who sued in court for back pay & liquidated damages.

Of 486 establishments investigated during fiscal year 1952, 63% were found in violation of overtime pay requirements. 29% had failed to comply with statutory minimum wage. Divisions found violations of Act's child-labor provisions in 3% of investigated establishments.

* * *

Operating telephone industry had labor turnover of 2.2 per 100 employees during Oct., 1952, US Department of Labor's Bureau of Labor Statistics (BLS) reported in analysis of employment & payrolls in some 200 selected industries.

For communications equipment manufacturing industry turnover in Oct. was 4.4 per 100. In Nov. turnover dropped to 3.4. Elsewhere in its statistical report, BLS said that of some 201,200 people employed in communications equipment manufacturing industry in Sept. of last year about 50% were women.

Total employment force of 732,000 in communications industry at end of Nov. was increase of 31,000 over same month of 1951, BLS reported. Total was divided between telephone, with about 684,000 – increase of some 32,000 from Nov., 1951 – & telegraph with 46,400, drop of 4000 from Nov., 1951.

* * *

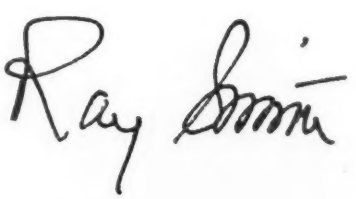
New York Public Commission, headed by chairman Benjamin F. Feinberg, will serve as host commission for Sept. 21-24 annual convention of National Association of Railroad and Utilities Commissioners (NARUC) at Hotel Roosevelt in New York City. Dates are tentative.

* * *

Nebraska Railway Commissioners Richard H. Larson, formerly vice chairman of commission, & Harold A. Palmer, formerly chairman, have switched positions on state regulatory body as result of recent organization meeting. Marcus L. Poteet has been appointed sec.

* * *

HIGHLIGHTS: – Cross Plains (Ind.) telephone co-op group elected Harold Jones chairman of temporary board, Russell Wolf sec. & Elmer Laker treas. Group plans early application for REA loan . . . William Osick retired after serving 16 yrs. as pres. of board of Millstadt (Ill.) Tel. Co. . . . Piehn Tel. Co., Alta Vista, Ia., sold to H. W. Aringdale of Lehigh, Ia. . . . Pioneer Tel. Co., Waconia, Minn., completed changeover of Howard Lake (Minn.) exchange to dial operation . . . Wisconsin Tel. Co. will take over when Riverside Tel. Co. at Ahnapee, discontinues operation . . . New 5-county program is underway by group known as West River Mutual Aid Tel. Co., Center, N. D. Group plans application for REA loan.



Ray W. Smith, Editor

TOOL KIT FOR MICROWAVE

This is it . . . a screwdriver . . . the only tool needed for quick field replacement of Philco microwave units. Philco microwave is the answer to the need for swift, reliable communications. Philco design emphasizes minimum field maintenance time and cost. All major components are "packaged units", quickly and easily replaced on the site with only a screwdriver, permitting convenient depot checkout, for fullest use of field time.

Using JAN (Joint Army-Navy) specification components wherever applicable, Philco microwave is the only equipment available for commercial use with such high standards of quality. Philco microwave gives propagation and equipment reliability unmatched in the field . . . you should investigate.

For complete information write to Department TE

PHILCO Famous for QUALITY the World Over

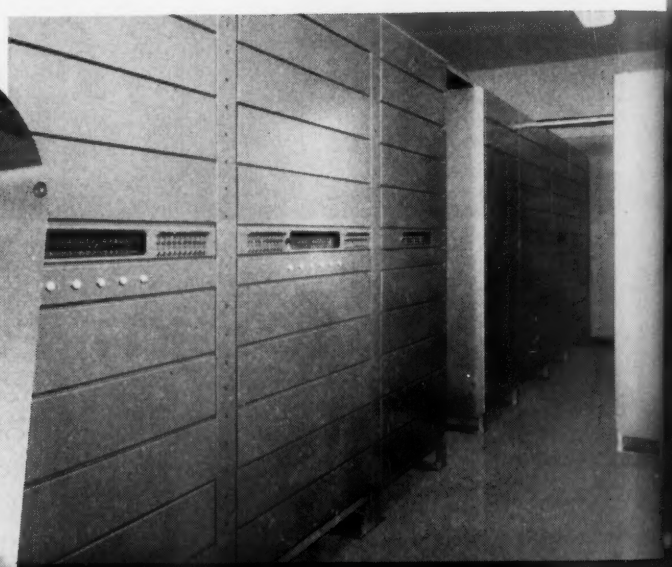
PHILCO CORPORATION

GOVERNMENT & INDUSTRIAL DIVISION

PHILADELPHIA 44, PA.

Another PROGRESSIVE EXCHANGE Goes Modern with—

KELLOGG Crossbar



KELLOGG **Crossbar** Dial Switching Equipment — Power Bay — that's years ahead of its field. Built by **Telephone Men**, it's THE equipment you can depend upon for money-saving economy, efficiency and extra long life. Cutover is quick, smooth and far less costly than you may think.

Here it is — the KELLOGG 1040 **Crossbar** — KELLOGG'S "Achievement of the Century" in switching equipment. It opens an entirely new era in dial switching equipment! . . . Simple, easy to install, rugged, long lasting! . . . The greatest advance ever offered the great Independent Telephone Industry. Send coupon — at right — for full particulars.

Cairo Telephone
Company,
Cairo, Georgia

Still another cutover to KELLOGG *Crossbar* has been performed—smoothly and quickly—at the Cairo Telephone Company, Cairo, Georgia. It provides this modern exchange with the most effective and economical service of any equipment manufactured! . . . Outstanding in its field, KELLOGG Crossbar is noted for such features as Minimum Maintenance Costs—Drawer Mounted Switches Individually Covered—Lowest Installation Costs—No Multiple Wiring—All Frames Wired at Factory—Maximum Expansion—Instantaneous Seizure of Paths —High Traffic Capacity and Exceptionally Long Life! . . . For most efficient, lowest cost service to subscribers, it will pay you to investigate—to specify—KELLOGG Crossbar!

FREE ➡ By all means get this interesting, instructive brochure explaining all the manifold benefits of KELLOGG *Crossbar*. It's yours for the asking.

KELLOGG

An Associate of
International Telephone and Telegraph Corp.

SALES OFFICES:
79 W. Monroe Street, Chicago 3, Illinois

KELLOGG SWITCHBOARD and SUPPLY COMPANY
79 W. Monroe St., Chicago 3, Illinois

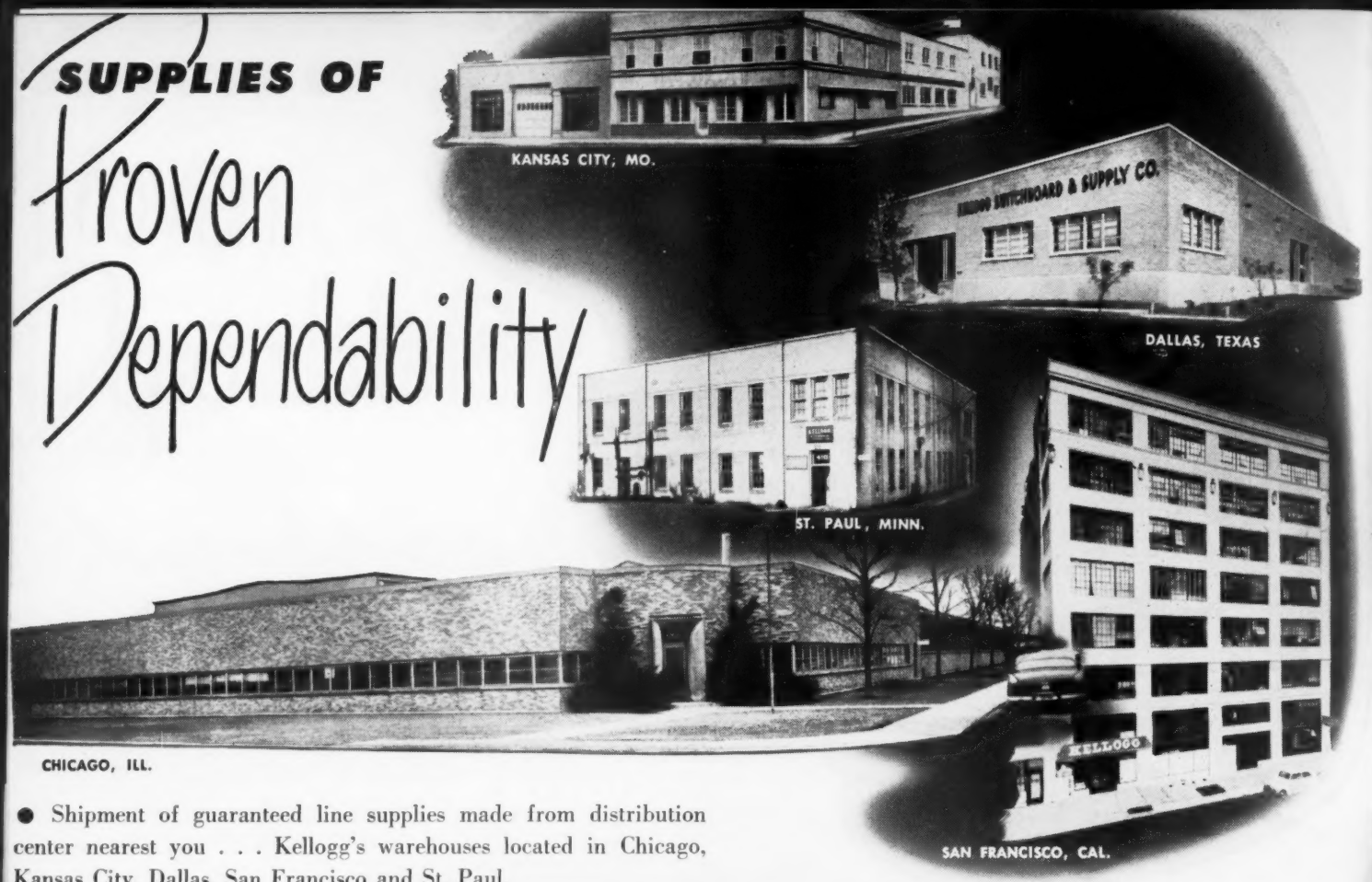
Please send your "Crossbar...Kellogg's Achievement of the Century"

NAME_____ COMPANY_____

ADDRESS_____ POSITION_____

CITY_____ ZONE_____ STATE_____

SUPPLIES OF Proven Dependability



● Shipment of guaranteed line supplies made from distribution center nearest you . . . Kellogg's warehouses located in Chicago, Kansas City, Dallas, San Francisco and St. Paul.

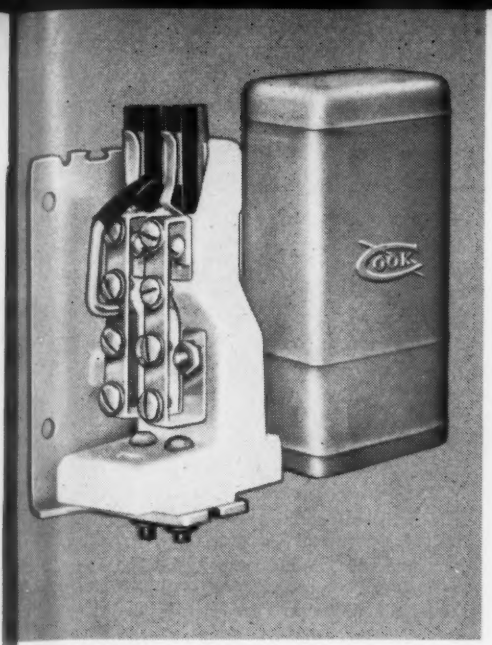
The following nationally-known manufacturers of supplies for the independent telephone field are participating in the 1953 Kellogg Co-operative Campaign.

American Creosote Works, Inc.
Ansonia Wire & Cable Company
John Bean Division
Food Machinery and Chemical Corp.
Bishop Manufacturing Co.
E. D. Bullard Company
Continental Cross-Arm Co.
Cook Electric Company
Copperweld Steel Company
Diamond Wire & Cable Company
The Electric Storage Battery Co.
Everstick Anchor Company
General Insulated Wire Works, Inc.
Gould-National Battery, Inc.
W. A. Hammond Drierite Company
Indiana Steel & Wire Company
Kester Solder Company
Lorain Products Corporation
National Carbon Company
a Division of Union Carbide and Carbon Corporation
National Telephone Supply Co.
Newman Manufacturing Company

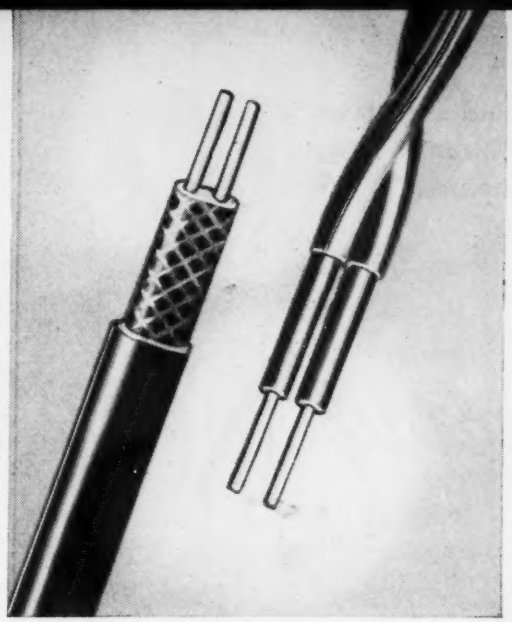
Reliable-Economical! "Eveready" "Columbia" "Gray Label" telephone dry cells give you dependability, plus economy thru higher sustained voltage and extra service life. NATIONAL CARBON COMPANY, a Division of Union Carbide and Carbon Corp.

Time Proven—for 60 years Exide Batteries have been serving telephony! The Manchester positive plate with its button type construction provides long life . . use Exide Manchex for all your battery requirements. ELECTRIC STORAGE BATTERY CO.

Ray-O-Vac Company
Raytheon Manufacturing Company
Reliable Electric Company
M. M. Rhodes & Sons Company
R T & E Co.
Schauer Manufacturing Corp.
Telkor, Inc.
Vulcan Electric Company



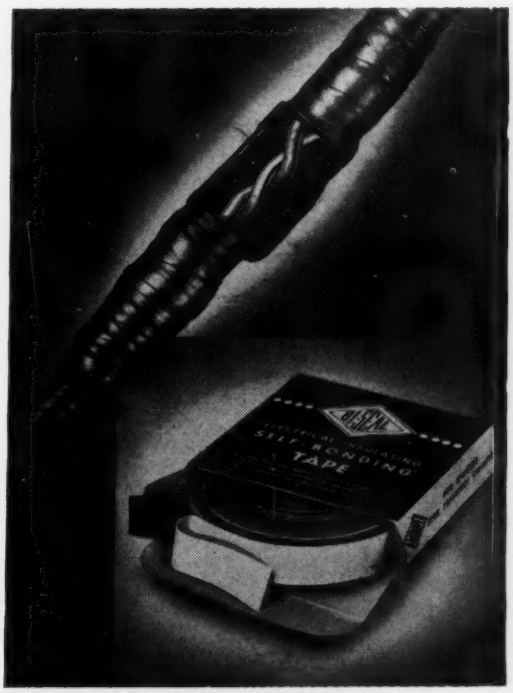
Save Drop Wire with the Cook Party Line Junction. Ideal for terminating and protecting the cable pair drop, the cable pair, and distributing four party line drops. Porcelain base, with zinc non-corrosive cover. Made by COOK ELECTRIC CO.



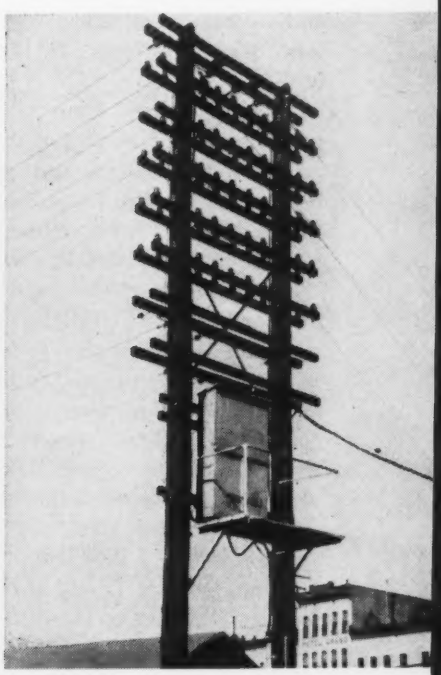
Lasts 30% Longer! Long service life and low plant costs go hand-in-hand with the installation of ENDURPRENE—The Neoprene Drop Wire available in Copperweld and bronze. Flexible, easy to handle. GENERAL INSULATED WIRE WORKS, INC.

The Key to Clear Party Lines- The Signal tone produced by the LORAIN HOWLER demands attention; it is loud yet safe — the ideal method for getting that misplaced receiver on the hook without making a service call. LORAIN PRODUCTS CORP.

Modern Cable Saves Money 3 Ways-Ansonia Ankoseal, the all-plastic, light-weight cable costs less to buy in the popular sizes, less to install, less to maintain. Available for aerial, duct and direct burial use. ANSONIA WIRE & CABLE COMPANY.



For Quick, Dependable Wire Splices—Bi-Seal, self-bonding, electrical insulating tape fuses into a solid, watertight, dielectric sheath when applied over wire and cable splices. Outstanding for low temperature applications. BISHOP MFG. CORPORATION.



Economy in Overhead Construction is assured when crossarms by the CONTINENTAL CROSS-ARM COMPANY, INC., are a part of your wire and pole installation. Full seasoned American woods—built to sound standards of dependability.

Send Your Next Order for Supplies to

KELLOGG ... AN I T&T ASSOCIATE ....

AN ASSOCIATE OF INTERNATIONAL TELEPHONE AND TELEGRAPH CORPORATION

KELLOGG SWITCHBOARD AND SUPPLY COMPANY

GENERAL SALES OFFICES: 79 W. MONROE ST., CHICAGO 3, ILL.

BRANCH OFFICES: 406 South Main Street, LOS ANGELES 13, CALIF. — 720 S. W. Washington St., PORTLAND 5, OREGON

BRANCH WAREHOUSES AND OFFICES:

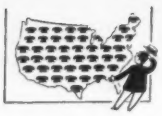
6000 W. 51st Street, CHICAGO 38, ILLINOIS

4501 Truman Road, KANSAS CITY 1, MISSOURI

1663 Mission Street, SAN FRANCISCO 3, CALIF.

410 No. Syndicate Ave., "Midway Area", ST. PAUL, MINNESOTA

1515 Turtle Creek Blvd., DALLAS 2, TEXAS



The editors of Industry News Briefs will welcome news from your company.

Industry News Briefs

South Dakota Co-Ops Form Association

THE SOUTH DAKOTA Rural Telephone Association (SDRTA), composed of telephone cooperatives borrowing money from the REA to build and operate rural telephone service, was formed at Huron, S. D., recently.

Forty directors from seven telephone cooperatives met at the Farmers Union Building and with the help of A. Hauffe, Leola, and C. M. Erkila, REA field representative, formed the new association.

The purpose of the association is to coordinate activities for the construction of telephone systems, the maintenance operations, and promote legislation and member education.

There are 14 telephone cooperatives planned for South Dakota with at least three in operation now.

Elected to serve as temporary directors were: President, Kenneth Holsum, Groton, (Pres. of the James Valley Telephone Co-op.); Vice President, Kenneth A. Knudsen, Hurley (Sec. of Dakota State Co-op.); Acting Secretary, Bernerd Riley, Salem; Legal Counsel, A. F. Ulner, Menno, (Attorney of Dakota State Co-op.). Other members of the board of directors are: Martin Schurr, Roscoe; Glenn Beck; Joe Knipping, Gann Valley, and Marvin Wilson, Spencer.

14 Telephone Companies Receive Management Award

CERTIFICATES of Management Excellence for the year 1952 have been awarded to 14 telephone companies by the American Institute of Management, New York. Three received the award for the third consecutive year: American Telephone & Telegraph Co., New York; The Cincinnati & Suburban Bell Telephone Co., Cincinnati, and New England Telephone & Telegraph Co., Boston. Two received it for the second time — The Bell Telephone Company of Pennsylvania, Philadelphia, and Chesapeake & Potomac Telephone Co. of Baltimore City.

Nine other telephone companies obtained the A.I.M. award for the first time: New York Telephone Co., N. Y.; Carolina Telephone & Telegraph Co., Tarboro, N. C.; The Chesapeake & Potomac Telephone Co. of Virginia, Richmond; Indiana Bell Telephone Co., Indianapolis; Mountain States Telephone & Telegraph Co., Denver; The Ohio Bell Telephone Co., Cleveland; The Pacific Telephone & Telegraph Co., San Francisco; Southern Bell Telephone & Telegraph Co., Atlanta, and The Southern New England Telephone Co., New Haven, Conn.

According to Jackson Martindell, president of the Institute — a nonprofit foundation devoted to improvement of corporate policies and practices — only 330 companies in the United States and Canada, out of the 3,000 leading concerns whose methods were studied by the Institute, were found eligible to receive the designation.

The number of companies receiv-

Alden, Ia., residents are proud of the newly-remodeled office of the Alden Telephone Co. WALT NELSON is president and manager of th firm with FAYE BIGELOW as scretary-treasurer. Personnel includes: MRS. ANNA NELSON, night operator; MISS VERA MARTIN and MRS. VELMA SMITH, daytime operators; MRS. FRANK HALBERSTADT and MRS. ERNEST OSKVIG, substitutes. Mrs. Oskvig also assists with the office work. — (Webster City (Ia.) Journal Photo.)

THERE'S A BIG

HOMELITE

When you buy a Homelite pump, generator, blower, or chain saw, you buy a superior product. You get outstanding performance and real dependability, the results of Homelite's 30 years' experience in manufacturing gasoline engine driven units. And with this, you get a plus . . . a big plus...*service* of unusual caliber.

Covering the entire country, there are 45 Homelite factory branches . . . fully staffed by Homelite men and completely stocked with Homelite parts. These factory branches are Homelite branches *exclusively* . . . servicing Homelite products exclusively . . . serving Homelite customers exclusively. They are established, located and equipped to bring factory precision service to you *in the field* . . . in the fastest possible way.

CALL
ANY OF THESE
HOMELITE
FACTORY BRANCHES FOR
PROMPT, EFFICIENT SERVICE

Albany, New York – Albany 5-1617
Atlanta, Georgia – Crescent 5845
Baltimore, Maryland – Chesapeake 0825
Bloomfield, Conn. – Hartford 7-0444
Bloomington, Ill. – Bloomington 2-7877
Boston, Massachusetts – Stadium 2-4455
Buffalo, New York – Fillmore 1515
Charlotte, N. C. – Charlotte 2-5855
Chicago, Illinois – Auburn 7-0246
Cincinnati, Ohio – Mulberry 1869
Cleveland, Ohio – Shadyside 1-6171
Dallas, Texas – Riverside 4679
Detroit, Michigan – Tyler 7-1811
Fresno, California – Fresno 4-5170
Glenallen, Virginia – Richmond 88-1179
Grand Rapids, Mich. – Glendale 2-9204
Harrisburg, Penna. – Harrisburg 5-6711
Houston, Texas – Preston 7371
Indianapolis, Indiana – Irvington 6447
Jackson, Mississippi – Jackson 3-8483
Jacksonville, Fla. – Jacksonville 3-5475
Kansas City, Missouri – Logan 9555
Los Angeles, California – Angelus 0186
Lufkin, Texas – Lufkin 8
Memphis, Tennessee – Memphis 4-1660
Milwaukee, Wisconsin – Hilltop 2-2505
New Orleans, La. – Temple 2707
New York, N. Y. – Cortland 7-2523
North Arlington, N. J. – Kearny 2-3500
North Salt Lake, Utah – Salt Lake 9-4216
Omaha, Nebraska – Atlantic 8085
Philadelphia, Penna. – Lombard 3-0614
Pittsburgh, Penna. – Allegheny 1-7263
Port Chester, N. Y. – Port Chester 5-3400
Portland, Oregon – Murdock 3309
Rochester, New York – Monroe 4676
Roseburg, Oregon – Roseburg 3-5295
Sacramento, Calif. – Hillcrest 6-6068
St. Louis, Missouri – Sweetbriar 3537
St. Paul, Minnesota – Prior 1852
San Francisco, California – Mission 8-6100
Seattle, Washington – Seneca 5742
Spokane, Washington – Keystone 7913
Syracuse, New York – Syracuse 2-7902
Toledo, Ohio – Jordan 8723

Manufacturers of Homelite
Carryable Pumps • Generators
Blowers • Chain Saws

PERFORMANCE · DEPENDABILITY · SERVICE

HOMELITE
CORPORATION
1203 RIVERDALE AVENUE • PORT CHESTER, N. Y.

RAYTHEON RECTICHARGERS®

(BATTERY CHARGERS)

The same Raytheon RectiChargeRs which are standard equipment throughout the Telephone Industry also provide unfailing current for safeguarding vaults There is no more convincing testimony to DEPENDABILITY than the application of this equipment to the Protective and Alarm Systems employed by Banks from coast to coast.

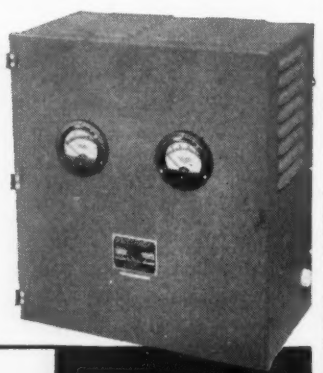
RAYTHEON

Excellence in Electronics

ADD UP THESE ASSETS — *Raytheon RectiChargeRs are fully automatic in operation . . . always follow the load . . . maintain constant voltage output over the complete load range . . . prolong battery life . . . prevent overcharging and undercharging . . . contain no moving parts to wear out . . . require no routine maintenance other than inspection only once or twice a year* — and you have the standard, time-tested battery charger of the constant potential type, the ideal equipment for year in, year out dependable Telephone service at low cost.

Complete line for all Telephone Needs

Catalog Number	Battery Cells	Amps. Cont.	Input Voltage	Control
RCR-1066B RCR-1058B RCR-1067B	11/12 11/12 11/12	1.0 3.0 6.0	115 Volts, 60 cycle, 1-phase	Magnetic
RCR-2013A RCR-2016A	11/12 11/12	12.0 24.0	115 or 230 volts, 50 or 60 cycles, 1-phase	Electronic
RCR-1068B RCR-1069D RCR-1070D	22/24 22/24 22/24	1.0 3.0 6.0	115 volts, 60 cycle, 1-phase	Magnetic
RCR-2016B	22/24	12.0	115 or 230 volts, 50 or 60 cycles 1-phase	Electronic
RCR-3525 RCR-3550 RCR-35100	22/24 22/24 22/24	25.0 50.0 100.0	208 or 220 volts, 50 or 60 cycles 3-phase	Magnetic Amplifier



RAYTHEON
MANUFACTURING COMPANY
EQUIPMENT SALES DIVISION
DEPT. 6470-ME, WALTHAM 54, MASSACHUSETTS

DISTRICT OFFICES: BOSTON, NEW YORK, CLEVELAND, CHICAGO, NEW ORLEANS, LOS ANGELES (WILMINGTON), SAN FRANCISCO, SEATTLE
INTERNATIONAL DIVISION: 19 RECTOR ST., NEW YORK CITY

RAYTHEON PRODUCTS INCLUDE:
MARINERS PATHFINDER* radar; Submarine Signal FATHOMETERS*; Marine radiotelephones; WELD-POWER* welders; Voltage stabilizers (regulators); Transformers; RectiChargeR* battery chargers; RectiFilteR* battery eliminators; Sonic oscillators for laboratory research; Standard control knobs; Electronic calculators and computers; Television receivers, Radio, television, subminiature and special purpose tubes; MICROTHERM* diathermy and other electronic equipment. *Reg. U S. Pat. Off.

Your regular Supplier offers the complete line of Raytheon RECTICHARGERS for all Telephone requirements. Ask him for complete information, or write us direct.

ing this recognition is growing every year, Mr. Martindell observed, pointing out that 228 were deemed "excellently managed" by the Institute for 1950, and 298 for 1951. In order to qualify, a company must be given 7,500 points out of a possible 10,000. These credits are assigned for excellence in ten separate areas of management — economic function, corporate structure, health of earnings growth, fairness to stockholders, research and development, directorate analysis, fiscal policies, production efficiency, sales vigor and executive evaluation.

General Tel. Purchases San Angelo Tel. Co.

GENERAL TELEPHONE CORP. has purchased all of the outstanding capital stock of the San Angelo Telephone Co., with general offices located in San Angelo, Texas, according to an announcement made in New York by General Telephone System President, Donald C. Power. The San Angelo company furnishes telephone service to approximately 25,000 telephones served through 18 exchanges.

Plans contemplate the transfer of the property and assets of The San Angelo Telephone Co. to the General Telephone Co. of the Southwest, increasing the number of company-owned telephones of the latter to more than 158,000.

The principal exchange of The San Angelo Telephone Co. is located in San Angelo, county seat of Tom Green County, Texas, with a population of 55,000. This exchange is dial operated, having more than 16,000 telephones in service.

Mr. Power pointed out that the acquisition will be a major addition to the General Telephone Co. of the Southwest, increasing its company-owned stations by more than 20%.

Commission Approves Sale of Five Independents

THE OHIO Public Utilities Commission has authorized the Ohio Bell Telephone company to buy five small telephone companies in rural Belmont and Monroe Counties.

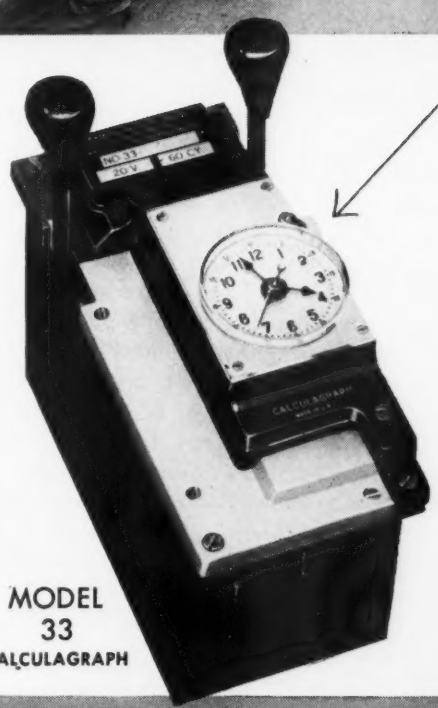
The commission authorized these smaller companies to sell their properties:

The Citizen's Telephone Company, Beallsville, for $7300; the Citizen's Telephone Co., Clarington, for $4500; the Benwood Telephone Co., Sardis,

Here's why *modern* exchanges use

CALCULAGRAPH

Photo Courtesy of STROMBERG CARLSON CO. and THE PENINSULAR TELEPHONE CO.



MODEL
33
CALCULAGRAPH

Busy exchanges throughout the world are using Calculagraphs because they produce quick, accurate, automatic toll time records. Accurate to-the-second, printed records eliminate switchboard detail work and assure you of collection of all revenue due on every call. CALCULAGRAPHS are precision instruments with high visibility clock dials, easy to operate — featuring smooth silent lever action.

For complete information on the various models available write to —

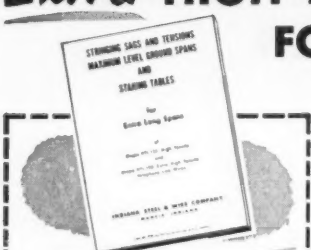
CALCULAGRAPH COMPANY

HARRISON • NEW JERSEY

THE STANDARD OF ACCURACY SINCE 1892

MEETING DEMANDS FOR *Longer* SPANS

Extra HIGH-TENSILE TELEPHONE WIRE FOR *extra* LONG SPANS!



Write FOR THIS INFORMATIVE BOOK!

Engineering data includes Stringing Sags and Tensions, Maximum Level Ground Spans and Staking Tables for Extra Long Spans of *Crapo* HTL-135 High-Tensile and *Crapo* HTL-190 Extra High-Tensile Line Wire. Ask for Data Book No. 300!

● Spans up to *600 feet* are possible with *Crapo* HTL-190 Extra High-Tensile Telephone Line Wires — latest achievement by the makers of *Crapo* HTL-85 and *Crapo* HTL-135 High-Tensile line wires.

Crapo HTL-190 has been developed specifically to meet the need of the telephone industry for *extra* long span construction of rural lines. It is designed especially for use where telephone circuits and power lines are to occupy the same pole structures. *Crapo* HTL-190 is applicable to the construction of open wire lines, where terrain and other conditions permit *extra* long spans, and for river crossings.

For maximum savings in the construction and maintenance of rural communication lines, specify the *Crapo* Telephone Line Wire which best fits your requirements!

Crapo Telephone Line Wire, Steel Strand, Tie Wire, Cable Lashing Wire and associated items are distributed by leading jobbers. Ask your Jobber representative for complete information!

* Trade Marks

INDIANA
STEEL AND WIRE CO., MUNCIE, IND.

for $900; the Somerton Telephone Co., Somerton, for $3700; the Hanniball & Roundbottom Telephone Co., Hannibal, for $6500.

Ohio Bell also was authorized to take over certain territory from the Powhatan Telephone Co.

The decision marks the end of the first application by the REA for authority to buy a telephone company in Ohio.

The REA telephone division first made its request for authority to buy up the small companies more than a year ago. The Ohio commission found that telephone service in the area was inadequate and that the small privately owned companies were in such bad physical and financial condition that there was little chance they could improve their properties through their own efforts.

Ohio Bell stepped into the picture when negotiations between REA and the small companies broke down.

General of Calif. Employees To See Traffic Safety Film

As part of its continuing program to keep its employees safety conscious, General Telephone Co. of California (formerly Associated) is showing the traffic safety film "A Day In Court" to its entire personnel of more than 5,400 persons, according to Edwin M. Blakeslee, president of the company.

The film, which won the National Safety Council's first place award for 1952, features Judge Roger A. Pfaff of the Los Angeles traffic court, whose research into the causes of traffic accidents and techniques for preventing such accidents have become nationally recognized.

Mr. Blakeslee said that company officials and safety personnel were so impressed with the dramatic lesson depicted in a preview of the sound film that copies were acquired for showing throughout the company. It is being shown during working hours to groups of 50 to 70 people as rapidly as it can be circulated to the company's various offices in Southern and Central California. "In showing this film to our people, our objective is to plant and nourish the seed of safe driving, not only when they are operating company vehicles, but when they are driving their own cars as well", he said.

Mr. Blakeslee pointed out that the

(Please turn to page 58)

For faster, safer clearance that lasts for years

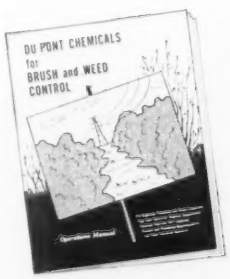
Kill Brush with DuPont Ammate®

Many users report one spray with Du Pont "Ammate" kills brush so thoroughly that repeat sprays are not needed for years.

In most cases, when the original spray job is done well, brush is kept under control with nothing more than occasional spot sprays starting five or more years later. This assures lower cost brush control with less work for your maintenance crews or custom sprayers.

Here's why "Ammate" works so well.

- **Kills roots of brush as well as tops, yet allows low-growing natural cover to come back.**
- **Control lasts for years, saves labor of hand cutting or annual spraying.**
- **Reducing to a minimum the hazard of damage by spray drift.**
- **Not hazardous to operators, livestock or wildlife. Nonflammable.**



Free illustrated booklet describes how to control brush in rights of way with Du Pont "Ammate." For your copy, write Du Pont, Grasselli Chemicals Dept., Wilmington, Del.

On all chemicals always follow directions for application. Where warning or caution statements on use of the product are given, read them carefully.

DU PONT
REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY

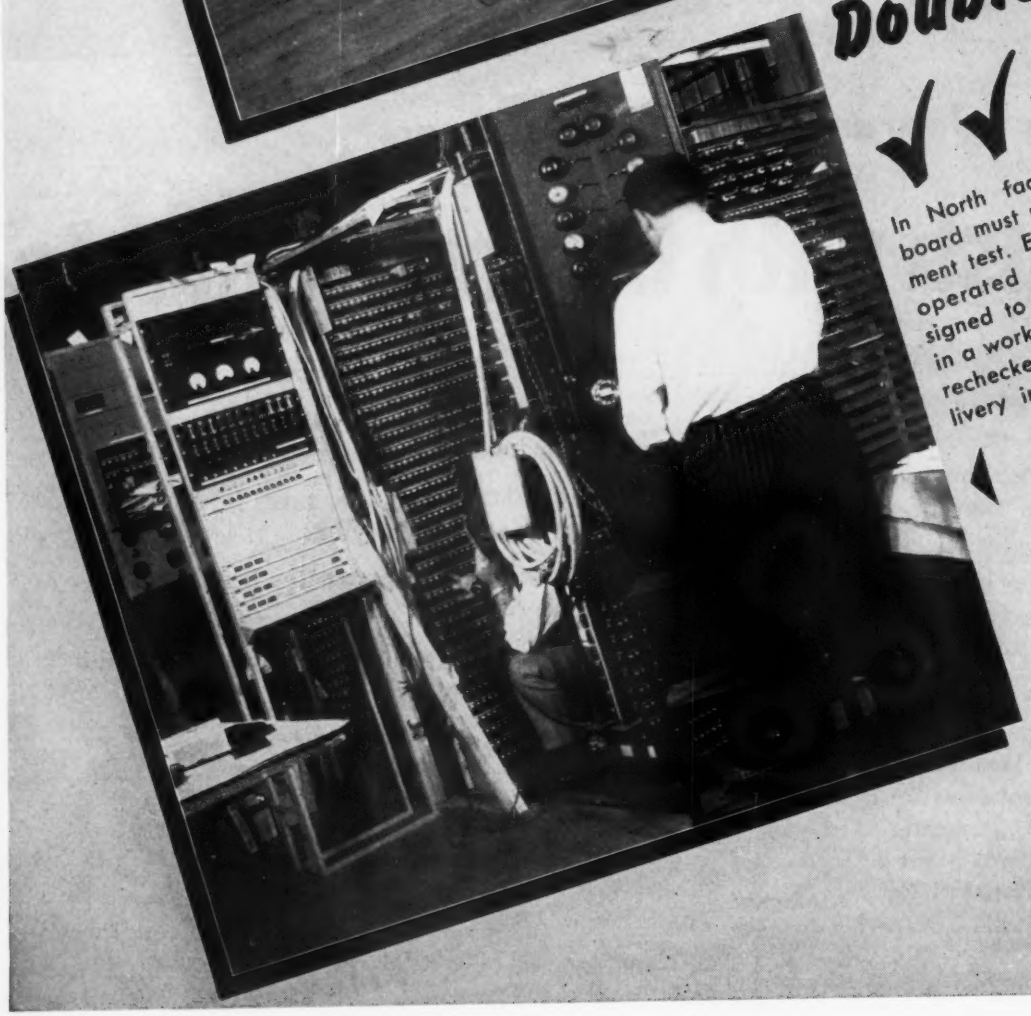
Why NORTH

It Starts Here

In North laboratories imagination combines with science in a never-ending search for new applications of all-relay telephony. Each step must improve performance, simplify installation and, if practical, reduce cost. Above all, it MUST maintain the standard of dependability for which the name NORTH has stood for more than half a century.

Double Checked ✓✓ Here!

In North factories every switchboard must pass a rigid pre-shipment test. Each is assembled and operated under conditions designed to prove its dependability in a working installation. It is then rechecked and readied for delivery in ready-wired bays.



NORTH

H All-Relay Assures Dependability

North All-Relay Exchanges are made from 10 lines to 10,000 lines, with suitable provisions for system expansion.

Pays Off Here!

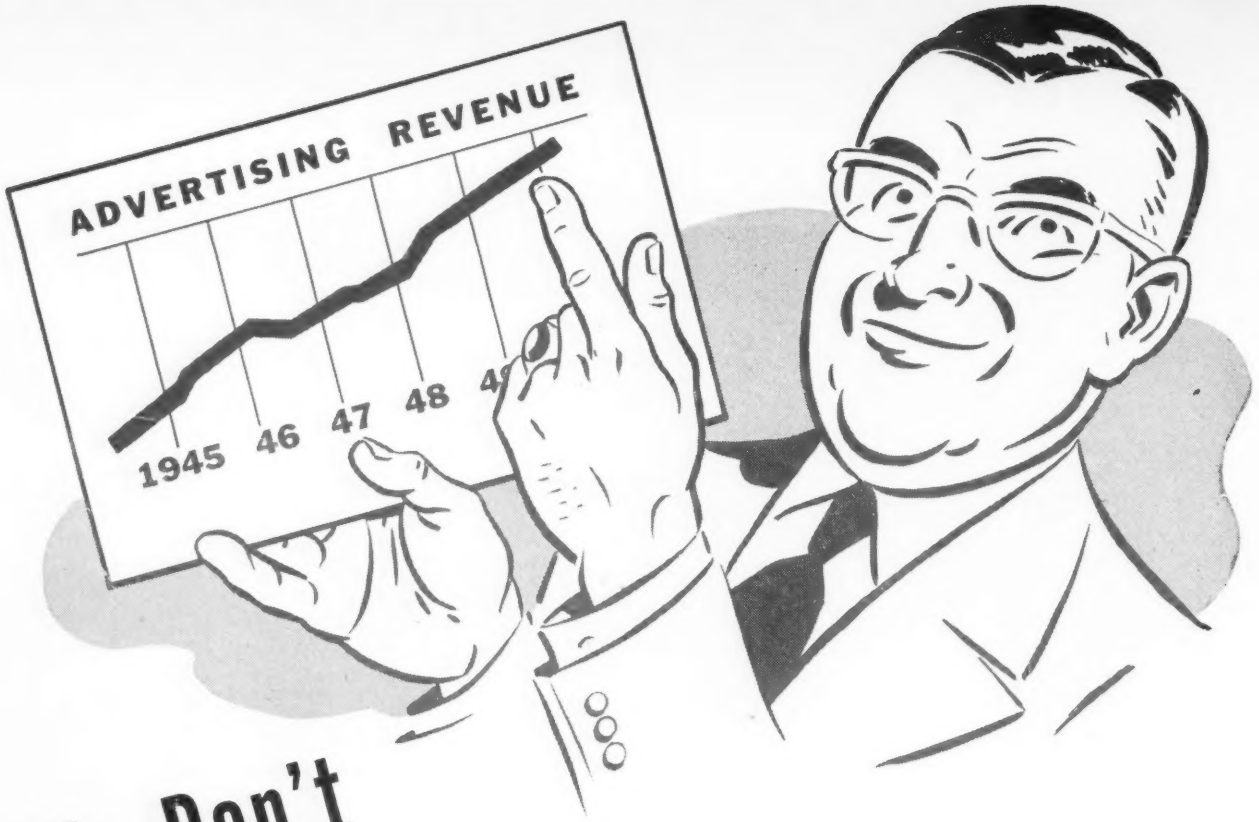
The extra thought and time invested in North equipment by both laboratory and factory show up in increased bankable earnings for telephone companies the world over, whether they operate single small boards or systems covering many cities and towns. Minimum supervision in all phases of operation, maximum rate-earning traffic on every line, improved satisfaction to subscribers *and* stockholders . . . these are the "pay-off" benefits brought to you by North All-Relay . . .

In *Truly* Automatic Telephone Systems

THE NORTH ELECTRIC MANUFACTURING COMPANY

Originators of **ALL RELAY** *Systems of Automatic Switching*

655 South Market Street, Galion, Ohio, U.S.A.



"We Don't Need Any Help"

● Directory advertising can . . . and does sell itself these days...to a point. Practically all telephone companies are increasing directory advertising revenues. Don't be complacent about *any* increase...it may fall far short of the potentialities of your service area. We invite you to call or write Loomis today for an analysis of your directory...without obligation on your part.

KNOW-HOW TO SOLVE YOUR DIRECTORY PROBLEMS

● 724 cities and towns in 22 states are served by the 287 directories that retain Loomis services.

LOOMIS
ADVERTISING COMPANY

"Where to Call"

FT. WAYNE, IND.
229 E. Berry St. . . . EAstbrook 3477

ST. LOUIS, MO.
506 Olive . . . GArfield 3700

KANSAS CITY, MO.
810 Baltimore . . . HArrison 1270

UPPER DARBY (Phila.), PA.
6908 Market St. . . . ALlegheny 4-3763

OMAHA, NEBR.
Omaha Nat'l Bank Bldg. . . . ATlantic 0188

It Outperforms...

HAS BETTER VOICE TRANSMISSION THAN ANY OTHER HIGH-STRENGTH CONDUCTOR

It Outlasts...

GIVES PERMANENT PROTECTION AGAINST RUST

It's Copperweld TRADE MARK LINE WIRE

If you're looking for a non-rusting line wire that will give you greater safety for long spans, permanently better conductivity, and a lifetime of trouble-free service, Copperweld* Line Wire is your answer.

Made by molten-welding a thick copper covering to a strong steel core, Copperweld Line Wire provides better voice and high frequency transmission characteristics than any other high-strength conductor—has greater tensile strength than any wire of comparable electrical properties—assures permanent protection against corrosion. These vitally important properties make Copperweld the perfect conductor for all types of communication and signal lines, including carrier current systems where its high strength permits stringing with small sags, allowing close conductor spacings.

The tough and permanently protected steel core of Copperweld Line Wire furnishes the strength necessary for safe, economical, long-span construction. You'll save on repairs and maintenance because Copperweld has the ruggedness to withstand heavy ice and wind loads.

When you use Copperweld Line Wire, you get a dependable conductor that delivers dependable performance at the lowest annual cost. Complete information and engineering assistance are yours for the asking . . . without any obligation.

*Trade Mark

COPPERWELD STEEL COMPANY ***Glassport, Pa.***

SALES OFFICES IN PRINCIPAL CITIES

Copperweld TRADE MARK NON-RUSTING *Line Wire*

SOLD BY LEADING DISTRIBUTORS

PEATROPHONE
Takes in Washing At Night!

Says "Pete":

It's a fact! In a Cleveland laundry, Peatrophone (THE MECHANICAL SECRETARY) takes orders *all night long* for pick-ups the next day. Customers are enthusiastic about the service, and the owner is enthusiastic about the profits.

This laundry is only one of the many businesses which are using Peatrophone profitably. *Your own Telephone Company will find that leasing charges from Peatrophone Service represent the greatest new source of revenue since the advent of long lines!*

Ease of operation is one of the big selling points with subscribers. In the laundry, the owner records a short talk-out message describing the kinds of laundry service available, and telling the customer when to start talking and how long his message may be. He then adds a cheerful "thanks for your order", and places the talk-out record on the small turntable ready to deliver its message to customers. Before locking up for the night, he puts a large record on the turntable, and presses the AUTOMATIC button, leaving Peatrophone ready to answer and "take in washing". Simple, eh?

Write now for illustrated booklet on Peatrophone—your great new source of revenue.

TELEPHONE ANSWERING and RECORDING CORP.

342 MADISON AVE. Telephone • MUrray Hill 7-2193 NEW YORK 17, N.Y.

a lighter load . . .

a longer reach

with Ankoseal all-plastic telephone cables which are weather-proof, chemical resistant, water resistant and electrically superior

Since Ankoseal is about half the weight of lead cable, telephone companies use longer spans for new construction. There's a saving of poles, hardware and manpower. The job costs less and takes less time.

On existing pole line, smaller, less expensive messenger can be used. In certain cases Ankoseal is self-supporting and no messenger is needed.*

Apply these savings to your own plant. Write or telephone for data and prices.

*For example Type 611, 6 pair, size 19 AWG medium hard copper conductors.

THE ANSONIA WIRE & CABLE COMPANY

Successor to The Ansonia Electrical Company

Ansonia, Connecticut — Phone — Ansonia 4-3306

outdoor
AUTELCO
PAYSTATIONS
PAY...right around the clock

YOU CAN GET 10-cent AUTELCO PAY-STATIONS, NOW. Send for Circular 1724 showing our full line plus kits for conversion to the 10-cent rate.

"Miles from Nowhere" *they'll beat a path to your* PAYSTATIONS!

A "better mousetrap" won't earn a boxful of coins — but an outdoor paystation on the highway *will!* Put plenty of Autelco Paystations in modern booths at opportune spots along your well-traveled roads. Advertise them with BIG, colorful signs. You'll spend many a happy moment emptying the full coin boxes—and many a kind wish will be sent your way by people who appreciate your thoughtfulness!

Product of the Telephone Specialty Department of

AUTOMATIC ELECTRIC

Originators and Developers of the Strowger Step-by-Step "Director" for Register-Sender-Translator Operation . . . Machine Switching Automatic Dial Systems
Makers of Telephone, Signaling and Communication Apparatus . . . Electrical Engineers, Designers and Consultants

Distributors in U. S. and Possessions: Automatic Electric Sales Corporation
Export Distributors: International Automatic Electric Corporation
1033 West Van Buren Street, Chicago 7, U. S. A.

EDITORIAL

Watering Down The Utilities

DURING THE past twenty years or so — over a period coinciding roughly with that of the "New Deal" and "Fair Deal" regime of our national government — a number of important changes have taken place in the ideologies and philosophies of public utility regulation.

Some of these changes are the result of court decisions. But most of them were initiated by the regulatory commissions.

In practically all such cases changes, when initiated by the commissions, have the end result of watering down the earnings of the utility companies.

We have in the telephone business a clear-cut and important example of this watering down process. That is the example of what has happened to the rate base during those twenty years.

For a long time and until about the mid-1930's, the property value upon which a telephone company was allowed to earn was determined by appraisal on a "reproduction cost new" basis, less an amount representing "observed depreciation." Book value and depreciation accrued were not determining factors.

The Federal Communications Commission, created in 1934, established for companies under its jurisdiction the "original cost" basis of stating, on the company's books, the value of its property. This basis was gradually adopted by practically all state commissions.

In most cases, "original cost" was less than "reproduction cost new less depreciation" — and, in many cases, considerably less.

Following high court decisions which were presumed to authorize the change, "original cost" became, in many commission jurisdictions, the principal factor in determining the rate base. And, in order to obtain net present value, it also became the practice in many jurisdictions to simply deduct from "original cost" the amount of the company's then depreciation reserve.

So firmly has this method become entrenched that, in one state, proposals have recently been made to amend the public utilities law so as to make the "original cost less depreciation reserve" basis mandatory upon that state commission.

Thus, in about twenty years, there has come about an entirely new philosophy with respect to the base upon which a utility should be allowed to earn.

During that same period other changes, also, have come about. Allowable accruals for depreciation, for instance, have been reduced. The rate of return has been lowered. New theories are being applied with respect to allowable cash working capital, and so on.

All of these changes, it is easy to see, have the end result of watering down the earnings and position of the utility. It is perhaps a fair question as to whether they would ever have been made if that were not the case?

There is another and basic question about all this:

What is the point to this continuous whittling away by commissions at the earnings position of the utilities? What end is served by it?

Fundamentally, the purpose of the utility companies is to supply to the public the utility service it desires. It is common knowledge that, as to all utility services, the demand is greater now than ever before.

It is common knowledge that, in order to meet this demand, the utilities must obtain and invest more money than ever before.

Apparently no one questions the fact that, in order to obtain this money, utility companies must earn sufficiently to pay for it at the going rates, and to retain something for surplus.

Why should commissions, by continuously evolving new theories of regulation, make it harder for the companies to do that?

This process of watering down the utilities is not, as we see it, in keeping with the times or of advantage to the publc to be served.

(The foregoing editorial, although copyrighted, may be reproduced in whole or in part, without charge, provided credit is given this publication and a copy of such reproduction is filed with this publication. This legend need not appear on the publication.)

Stromberg-Carlson XY directory at the year's end 1952

Andalusia, Ala., United Tel. & Tel. Co.
Ashland, Ala., Tri-County Tel.
Bayou la Batre, Ala., Bayou Tel. Co.
Chatom, Ala., Millry Tel. Co.
Eclectic, Ala., Elmore Coosa Tel. Co.
Gilbertown, Ala., Millry Telephone Co.
Heflin, Ala., Tri-County Tel.
Leeds, Ala., Leeds Telephone Co.
Lincoln, Ala., Lincoln Tel. Co.
Lineville, Ala., Tri-County Tel.
New Hope, Ala., New Hope Tel. Coop.
Odinville, Ala., Leeds Telephone Co.
Oneonta, Ala., Oneonta Tel. Co.
Owens Cross Roads, Ala., New Hope Tel. Coop.
Roanoke, Ala., Roanoke Tel. Co.
Samson, Ala., United Tel. & Tel. Co.
Wedowee, Ala., Tri-County Tel.

Alma, Ark., United Tel. Co.
Bellefonte, Ark., Boone Cty. Tel. Co.
Corning, Ark., Southwestern States Tel. Co.
Greenwood, Ark., United Tel. Co.
Magazine, Ark., Magazine Tel. Co.
Smackover, Ark., Union Tel. Co.

Antioch, Calif., Pacific Gas & Electric Co.
Arcadia, Calif., Hannon Eng. Co.
Covelo, Calif., Western Tel. Co.
Farmington, Calif., Farmington Tel. Co.
Laytonville, Calif., Western Tel. Co.
Loma Linda, Calif., Calif. Water & Tel. Co.
Los Angeles, Calif., H. H. Van Luven Co.
Olinda, Calif., Happy Valley Tel. Co.
Patterson, Calif., Evans Tel. Co.
San Jacinto, Calif., California Water & Tel. Co.
Sierra Madre, Calif., California Water & Tel. Co.

Hoyt, Colo., Wiggins Tel. Assoc.
Strasburg, Colo., The Valley Co-op Tel. Co.
Wiggins, Colo., Wiggins Tel. Assoc.

Apopka, Fla., Florida Tel. Corp.
Bartow, Fla., Peninsular Tel. Co.
Bradenton, Fla., Peninsular Tel. Co. (Intertoll)
Bradenton Beach, Fla., Peninsular Tel. Co.
Bristol, Fla., St. Joseph Tel. & Tel. Co.
Clearwater, Fla., Peninsular Tel. Co. (Intertoll)
Dunedin, Fla., Peninsular Tel. Co.
Englewood, Fla., Peninsular Tel. Co.
Hyde Park, Fla, Peninsular Tel. Co. (Intertoll)
Inverness, Fla., Florida Tel. Co. (Intertoll)
Lakeland, Fla., Peninsular Tel. Co. (Intertoll)
Lutz, Fla., Peninsular Tel. Co.
Madison, Fla., Southeastern Tel. Co.
New Port Richey, Fla., Peninsular Tel. Co.
Ocala, Fla., Florida Tel. Co.
Port St. Joe, Fla., St. Joseph Tel. & Tel. Co.
Port St. Joe, Fla., St. Joseph Tel. & Tel. Co. (PBX)
Quincy, Fla., Quincy Tel. Co.
Ruskin, Fla., Peninsular Tel. Co.
St. Armands, Fla., Peninsular Tel. Co.
St. Petersburg, Fla., Peninsular Tel. Co. (Intertoll)
Sarasota, Fla., Pennisular Tel. Co.
Sulphur Springs, Fla., Peninsular Tel. Co.
Tampa, Fla. (Branden Office), Peninsular Tel. Co. (Intertoll)
Tampa, Fla. (Drew Field), Peninsular Tel. Co. (Intertoll)
Tampa, Fla. (Keystone), Peninsular Tel. Co. (Intertoll)
Tampa, Fla. (Main Office), Peninsular Tel. Co. (Intertoll)
Tampa, Fla. (McDill Field), Peninsular Tel. Co.
Tampa, Fla. (Seminole), Peninsular Tel. Co. (Intertoll)
Tampa, Fla. (Wallcraft), Peninsular Tel. Co.
Tarpon Springs, Fla., Peninsular Tel. Co.
Tarpon Springs, Fla., Peninsular Tel. Co. (Intertoll)
Temple Terrace, Fla., Peninsular Tel. Co.
Venice, Fla., Peninsular Tel. Co.
Zephyrhills, Fla., Zephyrhills Tel. Co.

Army Chemical Center, Ga., Signal Corps
Blakely, Ga., Blakely Tel. Co.
Camp Stewart, Ga., Signal Corps
Clarkesville, Ga., Standard Tel. Co.
Hartwell, Ga., Hart Cty. Tel. Co.
Hiawassee, Ga., Standard Tel. Co.
Milledgeville, Ga., State of Georgia
Thomaston, Ga., Thomaston Tel. Co.
Trion, Ga., Riegel Textile Corp.
West Point, Ga., Interstate Tel. Co.
West Point, Ga., Interstate Tel. Co. (Intertoll)

Coeur d' Alene, Idaho, Gen'l Tel. Co. of the Northwest
Salmon, Idaho, Lemhi Tel. Co.

Addieville, Ill., Okaw-Commercial Tel. Co.
Beecher City, Ill., National Trail Tel. Co.
Bethalto, Ill., Madison Tel. Co.
Chestnut, Ill., Mt. Pulaski Tel. & Elec. Co.
Dixon, Ill., Dixon Home Tel. Co.
Edgewood, Ill., Farina Mut. Tel. Co.
Farina, Ill., Farina Mut. Tel. Co.
Fayetteville, Ill., Looking Glass Prairie Tel. Co.
Glasford, Ill., Glasford Canton Tel. Co.
Granville, Ill., Granville Tel. Co. (PBX)
Kansas, Ill., C. T. & N. Tel. Co.
Latham, Ill., Mt. Pulaski Tel. & Elec. Co.
Little York, Ill., Western Ill. Tel. Co.
Mascoutah, Ill., Looking Glass Prairie Tel. Co.
Millstadt, Ill., Millstadt Tel. Co.
Mulberry Grove, Ill., Mulberry Tel. Co.
New Baden, Ill., Looking Glass Prairie Tel. Co.
New Boston, Ill., Western Ill. Tel. Co.
Okawville, Ill., Okaw-Commercial Tel. Co.
Prophetstown, Ill., Prophetstown Tel. Co.
Red Bud, Ill., Harrisonville Tel. Co.
St. Jacob, Ill., Home Tel. Co.
Seaton, Ill., Western Ill. Tel. Co.
Troy, Ill., Troy Tel. Co.
Westfield, Ill., C. T. & N. Tel. Co.

Alfordsville, Ind., Daviess-Martin County Rural Tel. Corp.
Demotte, Ind., Northwestern Ind. Tel. Co., Inc.
Glendale, Ind., Daviess-Martin County Rural Tel. Corp.
Hebron, Ind., Northwestern Ind. Tel. Co., Inc.
Montgomery, Ind., Daviess-Martin County Rural Tel. Corp.
Pendleton, Ind., Indiana Reformatory
Plainville, Ind., Daviess-Martin County Rural Tel. Corp.
Plymouth, Ind., United Tel. Co., Inc.
Trinity Springs, Ind., Daviess-Martin County Rural Tel. Corp.
Williams, Ind., Daviess-Martin County Rural Tel. Corp.

Agency, Iowa, Iowa-Ill. Tel. Co.
Dodgeville Corners, Iowa, Mut. Tel. Co. of Mediapolis
Hedrick, Iowa, Iowa-Ill. Tel. Co.
Manilla, Iowa, Manilla Tel. Co.
Melcher, Iowa, Bellamy Tel. Co.
Mt. Union, Iowa, Iowa-Ill. Tel. Co.
Richlands, Iowa, Iowa-Ill. Tel. Co.
Sergeant Bluff, Iowa, Northwest-Iowa Tel. Co.
Villisca, Iowa, Villisca Farmers Tel. Co.

Atlanta, Kans., Southern Kansas Tel. Co.
Burden, Kans., Southern Kansas Tel. Co.
Cambridge, Kans., Southern Kansas Tel. Co.
Clearwater, Kans., Southern Kansas Tel. Co.
Gove, Kans., Grainfield Tel. Co.
Grainfield, Kans., Grainfield Tel. Co.
Grenola, Kans., Southern Kansas Tel. Co.
Hanston, Kans., United Tel. Assoc. Inc.
Healy, Kans., Healy Tel. Co., Inc.
Jetmore, Kans., Jetmore Tel. Co.
Junction City, Kans., Junction City Tel. Co.
Kingsdown, Kans., United Tel. Assoc. Inc.
Latham, Kans., Southern Kansas Tel. Co.
Spearville, Kans., United Tel. Assoc. Inc.
Viola, Kans., Southern Kansas Tel. Co.

Battletown, Ky., Brandenburg Tel. Co.
Brandenburg, Ky., Brandenburg Tel. Co.
Campton, Ky., Mt. Rural Tel. Co-op. Corp.
Calvert City, Ky., B. F. Goodrich Chem. Co.
Doe Run, Ky., Brandenburg Tel. Co.
Ezel, Ky., Mt. Rural Tel. Co-op. Corp.
Florence, Ky., Consolidated Tel. Co.
Fort Knox, Ky., Signal Corps
Hazel Green, Ky., Mt. Rural Tel. Co-op. Corp.
North Garrett, Ky., Brandenburg Tel. Co.
Payneville, Ky., Brandenburg Tel. Co.
Sandy Hook, Ky., Mt. Rural Tel. Co-op. Corp.
Union, Ky., Consolidated Tel. Co.
West Liberty, Ky., Mt. Rural Tel. Co-op. Corp.

Carlyss, La., Cameron Tel. Co.
Ringgold, La., Ringgold Tel. Co.
Welsh, La., Southwestern States Tel. Co.

Fort Meade (Main Post), Md., Signal Corps
Fort Meade (Gold), Md., Signal Corps

Alden, Mich., Traverse Bays Tel. Co.
Atwood, Mich., Traverse Bays Tel. Co.
Bellaire, Mich., Traverse Bays Tel. Co.
Britton, Mich., Britton Tel. Co.
Central Lake, Mich., Traverse Bays Tel. Co.
Clam River, Mich., Traverse Bays Tel. Co.

Climax, Mich., Climax Tel. Co.
Eastport, Mich., Traverse Bays Tel. Co.
Ellsworth, Mich., Traverse Bays Tel. Co.
Glen Harbor, Mich., Leelanau Cty. Tel. Co.
Hickory Corners, Mich., Hickory Corners Tel. Co.
Lake Ann, Mich., Leelanau Cty. Tel. Co.
Mapleton, Mich., Peninsula Tel. Co.
Millington, Mich., Millington Tel. Co.
Munger, Mich., Munger Tel. Exchange
Suttons Bay, Mich., Leelanau Cty. Tel. Co.
Torch River Bridge, Mich., Traverse Bays Tel. Co.

Ada, Minn., Norman Cty. Tel. Co.
Brandon, Minn., Gardenville Co-op Tel. Assn.
Claremont, Minn., Minn. Tel. Co.
Dodge Center, Minn., Minn. Tel. Co.
Ellendale, Minn., Minn. Tel. Co.
Erdahl, Minn., Gardenville Co-op Tel. Assn.
Evansville, Minn., Gardenville Co-op Tel. Assn.
Floodwood, Minn., Floodwood Tel. Co.
Hollandale, Minn., Minn. Tel. Co.
Mankato, Minn., Mankato Citizens Tel. Co.
Melby, Minn., Gardenville Co-op Tel. Assn.
Millerville, Minn., Gardenville Co-op Tel. Assn.
Oroneco, Minn., Pine Island Tel. Co.
Osakis, Minn., Osakis Tel. Co.
Pine Island, Minn., Pine Island Tel. Co.
Sleepy Eye, Minn., Sleepy Eye Tel. Co.

Ackerman, Miss., Ackerman Tel. Co.

Asbury, Mo., Waco Tel. Co.
Auxvasse, Mo., Auxvasse Tel. Co.
Brunswick, Mo., Western Light & Tel. Co., Inc.
Granby, Mo., Granby Tel. Co.
Hatton, Mo., Auxvasse Tel. Co.
Jefferson City, Mo., Capital City Tel. Co.
Pilot Knob, Mo., Ironton-Arcadia Tel. Co.
Seneca, Mo., Seneca Tel. Co.

Chinook, Mont., Chinook Tel. Co.

Blair, Nebr., Blair Tel. Co.
Lodge Pole, Nebr., Lodge Pole Tel. Exchange
Wolbach, Nebr., Tri-County Tel. Co.

Henderson, Nev., Henderson Tel. Co.

Fort Monmouth (Main Post), N. J., Signal Corps
Fort Monmouth (Watson Lab)), N. J., Signal Corps
Hampton, N. J., New Jersey Tel. Co.

Arch, N. Mex., Roosevelt Cty. Tel. Co.
Carlsbad, N. Mex., Gen'l Tel. Co. of the Southwest
Carlsbad, N. Mex., Gen'l Tel. Co. of the Southwest (PBX)
Causey, N. Mex., Roosevelt Cty. Tel. Co.
Dora, N. Mex., Roosevelt Cty. Tel. Co.
Elida, N. Mex., Roosevelt Cty. Tel. Co.
Floyd, N. Mex., Roosevelt Cty. Tel. Co.
Hobbs, N. Mex., Gen'l Tel. Co. of the Southwest
Jal, N. Mex., Gen'l Tel. Co. of the Southwest
Milnesand, N. Mex., Roosevelt Cty. Tel. Co.
White Sands, N. Mex., Signal Corps

Alfred, N. Y., Allegany Tel. Co., Inc.
Almond, N. Y., Allegany Tel. Co., Inc.
Andover, N. Y., Allegany Mut. Tel. Co.
Barryville, N. Y., Gen'l Tel. Co. of Upstate N. Y., Inc.
Breakabeen, N. Y., Middleburg Tel. Co.
Colonia, N. Y., Colonia Jr. and Sr. High School
Copake, N. Y., Copake Tel. Co., Inc.
Dryden, N. Y., Dryden Tel. Corp.
Etna, N. Y., Dryden Tel. Corp.
Hall, N. Y., Seneca Gorham Tel. Corp.
Hamden, N. Y., Delhi Tel. Co.
Herman, N. Y., Edwards Tel. Co.
Hillsdale, N. Y., Copake Tel. Co., Inc.
Hilton, N. Y., Hilton Tel. Co.
Holland Patent, N. Y., Oneida Cty. Rural Tel. Co.
Honeoye, N. Y., Seneca Gorham Tel. Corp.
Keuka Lake, N. Y., Dundee Tel. & Tel. Co.
Leicester, N. Y., Rochester Tel. Corp.
Middleburg, N. Y., Middleburg Tel. Co.
North Chili, N. Y., Ogden Tel. Co.
Ovid, N. Y., Trumansburg Home Tel. Co.
Rochester, N. Y., (General Electric) (PBX)
Rochester, N. Y., (General Motors) (PBX)
Rochester, N. Y., (Lincoln Rochester) (PBX)
Rochester, N. Y., (Security Trust) (PBX)
Rochester, N. Y., (Stromberg-Carlson) (PBX)
Rochester, N. Y., (Union Trust) (PBX)
Rushville, N. Y., Seneca Gorham Tel. Corp.
Seneca Castle, N. Y., Seneca Gorham Tel. Corp.
Spencerport, N. Y., Ogden Tel. Co.
Stanley, N. Y., Seneca Gorham Tel. Corp.
Walton, N. Y., Delaware Tel. Co.
Winthrop, N. Y., Nichoville Tel. Co.
Wyoming, N. Y., Rochester Tel. Corp.
Virgil, N. Y., Dryden Tel. Corp.

Belhaven, N. C., Caroline Tel. & Tel. Co.
Columbus, N. C., Thermal Belt Tel. Co.
Cooleemee, N. C., Cooleemee Tel. Co.
Greenville, N. C., Greenville Tel. & Tel. Co.
Harmony, N. C., Yadkin Valley Tel. Membership Corp.
Yadkinville, N. C., Central Tel. Co.

Aurora, Ohio, Western Reserve Tel. Co.
Beach City, Ohio, Gen'l Tel. Co. of Ohio
Bolivar, Ohio, Gen'l Tel. Co. of Ohio
Bowerston, Ohio, Gen'l Tel. Co. of Ohio
Brewster, Ohio, Gen'l Tel. Co. of Ohio
Hinckley, Ohio, Western Reserve Tel. Co.
Jackson Center, Ohio, Ohio Tel. Service Co.
Leavittsburg, Ohio, Warren Tel. Co.
Lordstown, Ohio, Warren Tel. Co.
Malvern, Ohio, Gen'l Tel. Co. of Ohio
Marietta, Ohio, Union Carbide & Carbon Corp.
Marietta (T. C. Depot), Ohio, Signal Corps
Newton Falls, Ohio, Warren Tel. Co.
Peninsula, Ohio, Western Reserve Tel. Co.
Pleasant Hill, Ohio, West Ohio Tel. Co.
Russell, Ohio, Western Reserve Tel. Co.
Strasburg, Ohio, Gen'l Tel. Co. of Ohio
Twinsburg, Ohio, Western Reserve Tel. Co.
Warren, Ohio (Brainard Steel Co.), Warren Tel. Co. (PBX)
Warren, Ohio (Republic Steel), Warren Tel. Co. (PBX)
Warren, Ohio (Standard Steel Spring), Warren Tel. Co. (PBX)
Warren, Ohio (Van Huffel Tube Corp.), Warren Tel. Co. (PBX)
Warren, Ohio, Warren Tel. Co. (PBX)
Wilmot, Ohio, Gen'l Tel. Co. of Ohio

Beaver, Okla., Gen'l Tel. Co. of the Southwest
Boise City, Okla., Gen'l Tel. Co. of the Southwest
Boynton, Okla., Southwestern States Tel. Co.
Bringer, Okla., Southwestern States Tel. Co.
Fort Cobb, Okla., Gen'l Tel. Co. of the Southwest
Goodwill, Okla., Gen'l Tel. Co. of the Southwest
Laverne, Okla., Gen'l Tel. Co. of the Southwest
Noble, Okla., Southwestern States Tel. Co.
Texhoma, Okla., Gen'l Tel. Co. of the Southwest

Amity, Ore., West Coast Tel. Co.
Brookings, Ore., West Coast Tel. Co.
Canby, Ore., Canby Tel. Assoc.
Chemult, Ore., West Coast Tel. Co.
Coos Bay, Ore., West Coast Tel. Co.
Detroit Dam, Ore., Interurban Tel. Co. (PBX)
Fort Klamath, Ore., West Coast Tel. Co.
Molalla, Ore., Molalla Tel. Co.
Pilot Rock, Ore., Independent Tel. Co.
Riddle, Ore., Calif. Pacific Utilities Co.
Silverton, Ore., Interurban Tel. Co.
Sisters, Ore., Northwest Tel. Co.
Ukiah, Ore., Independent Tel. Co.

Apollo, Pa., Kittanning Tel. Co.
Auburn, Pa., Lycoming Tel. Co.
Brookside, Pa., Lycoming Tel. Co.
East Brady, Pa., Kittanning Tel. Co.
Elderton, Pa., Kittanning Tel. Co.
Emmaus, Pa., Emmaus Tel. Co.
Ford City, Pa., Kittanning Tel. Co.
Fredricktown, Pa., South Penn. Tel. Co.
Genesee, Pa., Oswayo River Tel. Co.
Kempton, Pa., Lycoming Tel. Co.
Kittanning, Pa., Kittanning Tel. Co.
Krumsville, Pa., Lycoming Tel. Co.
Leechburg, Pa., Kittanning Tel. Co.
Leesport, Pa., Leesport Mut. Tel.
Lewisberry, Pa., Fishing Creek Tel. Co.
Loyalsock, Pa., Lycoming Tel. Co.
Midway, Pa., Midway Mut. Tel. Co.
New Bedford, Pa., New Wilmington Tel. Co.
New Bethlehem, Pa., Community Tel. Co.
New Tripoli, Pa., Lycoming Tel. Co.
Oklahoma, Pa., Vandergrift Tel. Co.
Pine Grove, Pa., Lycoming Tel. Co.
Rural Valley, Pa., Kittanning Tel. Co.
Trevarton, Pa., Mahonoy & Mahantongo Tel. Co.
Trout Run, Pa., Lycoming Tel. Co.
Vandergrift, Pa., Vandergrift Tel. Co.
Worthington, Pa., Kittanning Tel. Co.

Andrews, S. C., Seacoast Tel. Co.
Chesnee, S. C., Chesnee Tel. Co.
Georgetown, S. C., Seacoast Tel. Co.
Georgetown, S. C., Seacoast Tel. Co. (Intertoll)
Greeleyville, S. C., Farmers Tel. Co-op.
Greenwood, S. C., Greenwood Tel. Co.
Greenwood, S. C., Greenwood Tel. Co. (Intertoll)
Lancaster, S. C., Lancaster Tel. Co.
Myrtle Beach, S. C., Seacoast Tel. Co.
Ocean Drive, S. C., Seacoast Tel. Co.
Saluda, S. C., Saluda Tel. Co.

Clear Lake, S. Dak., Central Tel. Co.
Howen, S. Dak., Independent Tel. Inc.
Onaka, S. Dak., Independent Tel. Inc.
Rosholt, S. Dak., Independent Tel. Inc.
Seneca, S. Dak., Independent Tel. Inc.
Tolstoy, S. Dak., Independent Tel. Inc.

Alexandria, Tenn., DeKalb Tel. Co-operative
Bristol, Tenn. (Sperry-Girard), Inter-Mt. Tel. Co. (PBX)
Bristol, Tenn., Inter-Mt. Tel. Co.
Bruceton, Tenn., Bruceton Tel. Co.
Church Hill, Tenn., Inter-Mt. Tel. Co.
Concord, Tenn., Concord Tel. Exch., Inc.
Greenville, Tenn., Inter-Mt. Tel. Co. (PBX)
Hampton, Tenn., Inter-Mt. Tel. Co.
Kingsport, Tenn., Inter-Mt. Tel. Co.
Kingsport, Tenn., Inter-Mt. Tel. Co. (PBX)
Kingsport, Tenn., (Holston Ord. Works), Inter-Mt. Tel. Co. (PBX)
Liberty, Tenn., DeKalb Tel. Co-operative
Parsons, Tenn., Parsons Tel. Co.
Temperance Hall, Tenn., DeKalb Tel. Co-operative
Waynesboro, Tenn., Waynesboro Tel. Co.
Yorkville, Tenn., Mutual Tel. Co.

Anderson, Tex., Navasota Tel. Co.
Asperment, Tex., Gen'l Tel. Co. of the Southwest
Blessing, Tex., Gen'l Tel. Co. of the Southwest
Booker, Tex., Gen'l Tel. Co. of the Southwest
Bremond, Tex., Gulf States Tel. Co.
Clairemont, Tex., Caprock Rural Tel. Co-op
Clyde, Tex., Clyde Tel. Exchange
Conroe, Tex., Conroe Tel. Co.
Daingerfield, Tex., Gen'l Tel. Co. of the Southwest
Dalhart, Tex., Gen'l Tel. Co. of the Southwest
Darrouzett, Tex., Gen'l Tel. Co. of the Southwest
DeKalb, Tex., Gen'l Tel. Co. of the Southwest
Dry Lake, Tex., Caprock Rural Tel. Co-op
Etter, Tex., Phillips Chemical Co.
Fairfield, Tex., Three States Tel. Co.
Ft. Sam Houston, Tex., Signal Corps
Ganado, Tex., Ganado Tel. Co.
Girard, Tex., Caprock Rural Tel. Co-op
Gregory, Tex., Gen'l Tel. Co. of the Southwest
Hawkins, Tex., Hawkins Tel. Co.
Hughes Springs, Tex., Gen'l Tel. Co. of the Southwest
Jayton, Tex., Caprock Rural Tel. Co-op
Johnson City, Tex., The United Tel. Co.
Keller, Tex., Keller Indep. Tel. Co.
Lone Oak, Tex., Quinlan Tel. Co.
Lufkin, Tex., Lufkin Tel. Exchange
Lufkin, Tex., Lufkin Tel. Exchange (Intertoll)
Marble Falls, Tex., The United Tel. Co.
Markham, Tex., Gen'l Tel. Co. of the Southwest
Navasota, Tex., Navasota Tel. Co.
Olney, Tex., Gen'l Tel. Co. of the Southwest
Olton, Tex., Gen'l Tel. Co. of the Southwest
Palacios, Tex., Gen'l Tel. Co. of the Southwest
Peacock, Tex., Caprock Rural Tel. Co-op
Perryton, Tex., Gen'l Tel. Co. of the Southwest
Point, Tex., Quinlan Tel. Co.
Port Lavaca, Tex., Gen'l Tel. Co. of the Southwest
Premont, Tex., Gen'l Tel. Co. of the Southwest
Quinlan, Tex., Quinlan Tel. Co.
Raymondville, Tex., Gen'l Tel. Co. of the Southwest
Richards, Tex., Navasota Tel. Co.
Seymour, Tex., Gen'l Tel. Co. of the Southwest
Sommerville, Tex., Gen'l Tel. Co. of the Southwest
Spearman, Tex., Gen'l Tel. Co. of the Southwest
Spring, Tex., Tomboll Tel. Co.
Stephenville, Tex., Gulf States Tel. Co.
Stratford, Tex., Gen'l Tel. Co. of the Southwest
Swenson, Tex., Caprock Rural Tel. Co-op
Texline, Tex., XIT Rural Tel. Co. Co-op, Inc.
Thorndale, Tex., Gen'l Tel. Co. of the Southwest
Three Rivers, Tex., Gen'l Tel. Co. of the Southwest
Tohoka, Tex., Gen'l Tel. Co. of the Southwest

Manti, Utah, Manti Tel. Co.
Salt Lake City, Utah, Utah Power & Light Co. (PBX)
Tremonton, Utah, Bear River Valley Tel. Co.

Northfield, Vt., Northfield Tel. Co.

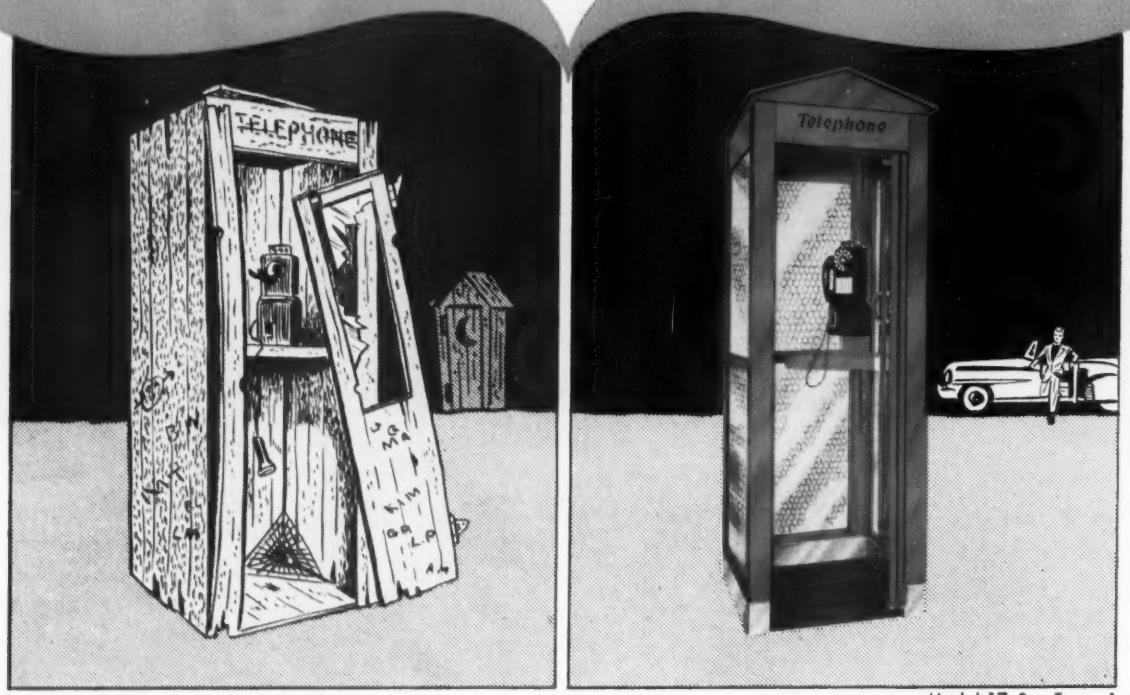
Austinville, Va., Inter-Mt. Tel. Co.
Haymarket, Va., Piedmont Tel. Co.
Lenah, Va., Piedmont Tel. Co.

Coupeville, Wash., West Coast Tel. Co.
Eatonville, Wash., Marshall Tel. & Tel. Co.
Everson, Wash., Farmers Mut. Tel. Co.
Fall City, Wash., Fall City Tel. Co.
Ferndale, Wash., Farmers Mut. Tel. Co.
Gig Harbor, Wash., Island Empire Tel. & Tel. Co.
Goldendale, Wash., Oregon Wash. Tel. Co.
Long Beach, Wash., Ilwaco Tel. & Tel. Co.
Oak Harbor, Wash., West Coast Tel. Co.
Ocean Park, Wash., Ilwaco Tel. & Tel. Co.
Olalla, Wash., Island Empire Tel. & Tel. Co.
Preston, Wash., Fall City Tel. Co.
Rainier, Wash., Rainier Tel. Co.
Seattle, Wash., Sears, Roebuck & Co. (PBX)
Soap Lake, Wash., Soap Lake Tel. Co.
Sultan, Wash., West Coast Tel. Co.
Toledo, Wash., Toledo Tel. Co.
Vail, Wash., Rainier Tel. Co.
White Salmon, Wash., Oregon Wash. Tel. Co.
Yelm, Wash., Yelm Tel. Co.

Hundred, W. Va., Shortline Tel. Co.
Littleton, W. Va., Shortline Tel. Co.
Pine Grove, W. Va., Shortline Tel. Co.
Smithfield, W. Va., Shortline Tel. Co.

Dresser, Wis., Osceola Farmers Mut.
Middleton, Wis., Farmers Union Tel. Co.
Osceola, Wis., Osceola Farmers Mut.
Solon Springs, Wis., Solon Springs Tel. Co.
Viroqua, Wis., Viroqua Tel. Co.

IT PAYS TO COMPARE



Model 17-S — Type 1

WOOD vs. STEEL

Is there one valid excuse today for wooden outdoor telephone booths? Think hard. Can you come up with even one acceptable reason? The picture at the upper left is no exaggeration. Chances are you've seen some in even worse condition. Then how do you justify the fire risks that wooden booths are exposed to? How can you ignore the ravages of termites and the element-induced rot? How can you shut your eyes to the high cost of continuous maintenance? And how do you laugh off the destructive and befouling impulses that the broken-down booth promotes? Bluntly, the wooden outdoor booth has no excuse for existence anymore — not even on the grounds of cost. Today the basic price of the Sherron steel outdoor booth is within range of the price of a wooden booth... but what a difference! The clean, symmetrical design of the sanitary Sherron steel booth promotes patronage and respect. It is fire-proof. It won't rot. It keeps maintenance at a minimum. Write for particulars today.

SEE COMPLETE SHERRON LINE IN TELEPHONY DIRECTORY AND TELEPHONE ENGINEER & MANAGEMENT DIRECTORY

SEE OUR SPECIFICATIONS IN SWEET'S

SHERRON METALLIC CORPORATION

1201 FLUSHING AVENUE • BROOKLYN 37 NEW YORK

ENGINEER and MANAGEMENT
THE NATIONAL TELEPHONE MAGAZINE

WASHINGTON BUREAU REPORTS

By ROLAND DAVIES and FRED HENCK

USITA and REA outline cooperation program . . . REA seeks additional $15,000,000 in loan authority . . . FCC gathering cost data on TWX.

PROGRAM of cooperation between the US Independent Telephone Association and the Rural Electrification Administration in meeting demands for telephone service in rural areas has been outlined in letters by USITA Executive Vice President Clyde S. Bailey and REA Administrator Claude R. Wickard.

The correspondence — from Mr. Bailey to members of USITA regional small company committees and from Mr. Wickard to telephone field personnel of the government agency — is an outgrowth of a conference held at Charlotte, N. C., where problems in the rural telephone field were discussed by representatives of the USITA and REA.

As a result, both officials stated in their letters, cooperation between USITA and REA representatives at the local level is being urged to "ward off" what Mr. Wickard described as the "numerous instances" in which friction had developed between existing companies and local organizations interested in obtaining REA telephone financing.

Both letters indicated an agreement on a policy that existing telephone companies should have the first opportunity to furnish required service before REA financing of a cooperative is considered.

"Mr. Wickard . . . concurred in our position that where the existing commercial telephone company was ready and willing to provide adequate service," Mr. Bailey stated, "the commercial company should provide the service, with finances secured from independent sources, or, if they desire, from REA."

In his letter, Mr. Wickard told the field personnel that "We believe that it is advisable for local groups considering the forming of new telephone organizations to first communicate with the officials of the existing telephone companies in the area. The first purpose would be to ascertain whether these companies are willing and able to provide the desired telephone service. If the existing companies cannot provide the . . . service, the local leaders should then discuss the determination of territorial boundary lines of the existing company and the opportunity for interconnection of any proposed system with the existing systems. Where it is anticipated that extended area service will be desired, this also should be discussed."

In stressing the importance of local meetings, Mr. Wickard added that "If the existing companies are willing and able to provide the service, they usually will be able to do so more rapidly than a new organization." He based this on the anticipated ability of the existing company to provide service at lower rates, the simplification resulting from one company serving the area, and finally the obviating of any need to have agreements on territory, extended area service, and other problems.

Mr. Bailey told USITA regional committee members that "it is our belief that much of the difficulty which has existed in the past can be eliminated if regional committees will keep in close enough touch with all acute situations of inadequate telephone service, prior to activities which lead to the formation of a telephone cooperative organization or sale to a Bell company.

"In addition to advising REA field personnel of the plans of our companies and areas in which there is a demand or need for improved serv-

ice," Mr. Bailey said, "regional committees should maintain regular contact with farm representatives. In many cases our own industry has been remiss in failing properly to recognize those acute telephone service situations until after they have become so exaggerated that remedial measures by the existing company are no longer possible."

Mr. Bailey listed as "major causes of misunderstanding" that have resulted in friction with REA in the past as: the question of territorial responsibility for providing telephone service; irresponsible promises or offers of free toll service to adjacent commercial exchanges without agreements with the commercial company; "a calculated program (by REA) of promoting telephone cooperatives in areas where there is no appreciable demand"; and a "program of purchase of Independent telephone companies at prices in excess of their fair value for the purpose of securing their territory as a nucleus for the formation of a telephone cooperative."

Mr. Wickard said in his letter that REA field men, "when first called in for assistance by local groups, will ascertain the extent to which these groups have discussed their problems with existing companies. If this has not been done, the field men will urge that a committee or group of responsible officials of the new organization arrange for such meetings before proceeding further with the loan application."

REA Seeks Additional $15,000,000 Loan Authority

ON CAPITOL HILL, meanwhile, REA had moved with the blessing of the new Agriculture Department leadership to seek an additional $15,000,000 in telephone loan authority for the remainder of the current fiscal year, which ends June 30. Illustrating that careful consideration had been given the request by the new Republican Agriculture "brass" was the fact that the request was not added to the supplemental appropriations bill now moving through Congress until after the measure had cleared the House.

Also significant was the change from REA's original intention to ask for $25,000,000 to round out its telephone loan program for the rest of fiscal 1953.

Expressions of approval by several members of the Senate Appropriations Committee during the appearance of REA Administrator Wickard made it apparent that the agency probably will receive the money asked. After passage by the Senate, of course, the REA fund will have to be endorsed by a joint House-Senate conference, since it was not included in the measure which was adopted by the lower chamber.

COMING CONVENTIONS

Nebraska Telephone Association, Cornhusker Hotel, Lincoln, March 24, 25.

Iowa Independent Telephone Association, Hotel Fort Des Moines, Des Moines, April 7 and 8.

Illinois Telephone Association, Hotel Pere Marquette, Peoria, Apr. 15 and 16.

Ohio Independent Telephone Association, Deshler-Wallick Hotel, Columbus, April 20-21 and 22.

Wisconsin State Telephone Association, Loraine Hotel, Madison, May 6 and 7.

Indiana Telephone Association, Claypool Hotel, Indianapolis, May 12, 13, and 14.

New York State Telephone Association, Mark Twain Hotel Elmira, May 18, 19, 20.

Kansas-Missouri Telephone Associations, (Joint Convention), Town House, Kansas City, Kan., May 20, 21, 22.

United States Independent Telephone Association, Executives' Conference, Edgewater Beach Hotel, Chicago, May 25 and 26.

Pennsylvania Independent Telephone Association, Pocono Manor Inn, Pocono Manor, June 3 and 4.

Oregon Independent Telephone Association and Washington Independent Telephone Association (Joint Convention), Chinook Hotel, Yakima, Wash., June 12 and 13.

California Independent Telephone Association, Ambassador Hotel, Los Angeles, June 18 and 19.

Michigan Independent Telephone Association, Hotel Pantlind, Grand Rapids, Sept. 3 and 4.

Rocky Mountain Telephone Association, Newhouse Hotel, Salt Lake City, Utah, September 24 and 25.

North Carolina Telephone Association, Carolina Hotel, Pinehurst, October 22 and 23.

South Carolina Telephone Association, (No Hotel Selected), October 26 and 27.

Oklahoma Telephone Association, Biltmore Hotel, Oklahoma City, November 12 and 13.

FCC Seeks Cost Data On T W X Service

PROGRAM of the Federal Communications Commission Common Carrier Bureau staff to gather information on the Bell System's cost of providing teletypewriter exchange and private line telegraph service was disclosed by FCC Chairman Paul A. Walker in the Commission's appearance before the House Interstate & Foreign Commerce Committee.

The FCC statement was made in one of a series of meetings the House committee is having with the regulatory and other agencies under its jurisdiction.

After discussions with Bell System representatives, FCC Telephone Division officials have developed a plan under which the Bell System will supply cost data. The question of Bell System costs in providing the service has been raised by the Western Union Telegraph Co. on several occasions, and by President Truman's Communications Policy Board, but the FCC to date has not had such cost and separations information available.

Chairman Walker's comment, which came up in a section of his statement relating to Western Union, was as follows:

"In connection with the problem of the financial status of Western Union, there is presently pending before the Commission an important rate question relating to the charges made

(Please turn to page 84)

DESIGN FOR A GOOD RATE SCHEDULE

By HELENE C. BATEMAN*

"The rate engineers seek to implement the objective of the most telephone service and the best at the least cost consistent with financial safety . . . "

WHAT IS A good schedule of telephone rates designed to accomplish?

"Elementary," you say: "telephone rates are designed to bring in enough money to run the business; enough so that the company can furnish good service, pay fair wages, and a fair profit."

Very true, and most important. But a well designed schedule of telephone rates can and does accomplish many other things in addition to producing a given amount of money.

Unlike most other businesses, the telephone company is a public utility, with earnings limited by regulatory authority. Various rate schedules can be designed which will produce the allowed return, and the telephone company's greatest interest is to choose from among them the one which will best serve the public.

Such a schedule obtains the necessary revenues with the lowest practicable rates and in ways which will keep revenues as stable as possible, thus minimizing the need for future rate increases. It encourages more people to have telephones and to use them more. It meets the needs of groups of customers whose requirements are different from the average. It promotes a high quality of telephone service and at the same time helps to keep down the costs of furnishing it. And the distribution of charges among customers is fair and reasonable.

The first step in designing a schedule to accomplish all this is to set up the different classifications of telephone service. Unlike a department store, which sells a variety of articles as obviously different as pins and pianos, the telephone company has basically just one thing to offer: the means by which people beyond shouting distance can talk with one another. For pricing purposes, this one basic service has to be classified as local or toll, business or residence, individual or party line, and so on.

The next step is to determine the type of rate to apply to each class; for example, whether a fixed monthly charge or a charge per message; if a message charge applies, whether it will vary with distance, length of conversation, or other factors.

Finally, the specific rate for each service is determined, not in isolation but as an integral part of the entire rate schedule.

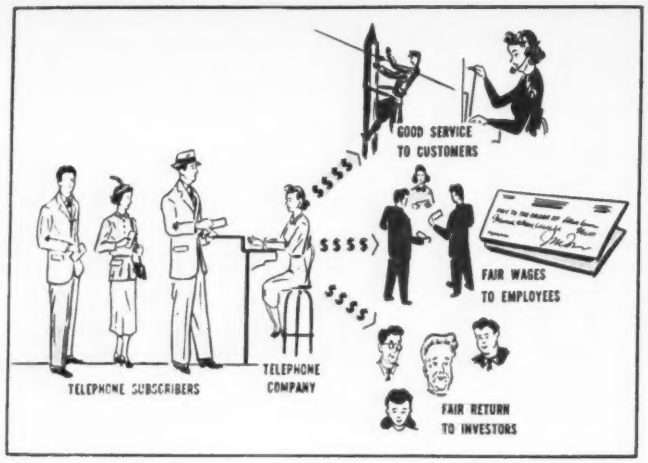
This is essential because no one talks to himself by telephone. Consequently, each customer's service depends on the service furnished to others. Rate treatment influences the amounts and types of telephone service customers take and the calls they make. So each rate in the schedule affects not only the customer who pays it but also every one who may want to talk to him.

Thus, through selection of the most suitable classes of service, types of rate treatment, and relative rates for the different classes, a rate schedule is designed which will best do its part in promoting the Bell System objective of "the most telephone service and the best at the least cost to the public consistent with financial safety."

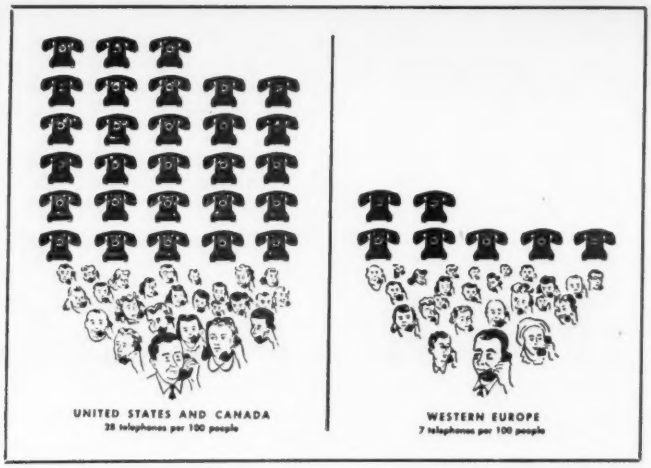
To make this more concrete, let's join Jim Brown while he takes a look at his home telephone bill.

There has just been a big change

Mrs. Bateman became a member of the original rate section at A. T. & T. in 1917. Since 1945 she has been head of the Exchange Rate Group.



Adequate rates are the only source of money to give — Good Service to Customers, Fair Wages to Employees, and Fair Return to Investors.



America has the highest telephone development in the world. A promotional rate structure is a big factor in this achievement.

in telephone service for Belleville, the small town where the Browns live. They now get local service to Fairview, the city where Jim works, and two small towns nearby. The telephone company calls it "extended area" service, but Jim and most of his friends talk about "toll free" service, because they won't have to pay the 10-cent toll to call Fairview, Springdale, or Brookside any more. Of course their monthly exchange rates will be higher. So Jim is looking over this first month's telephone bill more carefully than usual, to see how he is coming out over all.

Jim is pleased to see that his total bill is about the same as formerly—a little more than some months, a little less than others—although the family has been using the telephone a whale of a lot more. The monthly local service charge is $1.50, but those frequent calls to his mother, who lives alone in Fairview, don't show up as tolls any more, nor the ones from Nancy calling him at the office to remind him what not to forget to bring home. Jim notices, too, that his calls to Bill Smith in Akron cost quite a bit less since he got Bill's number and places the calls station-to-station. The rest of the bill is about as usual.

Does Jim Brown wonder why the rates for his main and extension telephones and for toll calls he makes were fixed just the way they are? Or why they are different from the charges his boss pays for business service in Fairview? Probably not. Jim sees that his bill seems reasonable, and it's a very small part of the family budget, so he lets it go at that. Actually, Jim Brown's telephone bill is the end result of much time and thought by the telephone company's rate engineers to make sure that the new rate schedule will best accomplish all the objectives of good rate making. Let's review these objectives one by one, and see how this is done.

Adequate and Stable Revenues

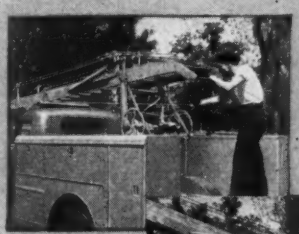
JIM BROWN'S bill is higher now than it was before the war because with inflation his telephone company's costs of doing business have gone up and higher rates are necessary to produce adequate revenues.

It is not within the scope of this

Rates are designed to encourage everyone to use the telephone. Nothing is more hopeful for the future of our business than the intense interest and desire of young people to use the telephone.

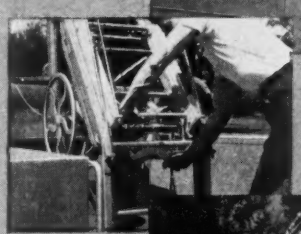
THIRTY FEET HIGH in THIRTY SECONDS

Simple, Easy, One-Man Operation



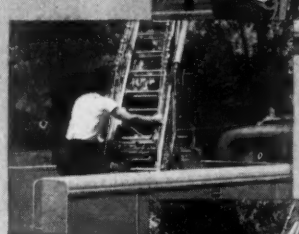
1. Ladder hold-down on cab roof is released.

2. Pressure is applied to lower ladder rung.



3. Ladder is locked in elevated position.

4. Upper section is extended to desired height.



5. Ladder is rotated to spotting position.

6. Incline of ladder is adjusted as required.

POWERS *American* SERIES 5510

REVOLVING AERIAL LADDER

Sounds unbelievable . . . but the *Powers-American* Aerial Ladder is so simple, so fast, and so easy to operate that it can be raised to a working position in only 30 seconds—by *one man!* This versatile ladder can be spotted in 40 positions throughout a 360° revolution . . . inclined to any angle from 30 to 75 degrees. Its curved platform falls into position automatically—to provide a level working surface. What's more, this ladder is so safe that it will support *five* times the normal working load. If your operation calls for overhead work, get all the facts on *Powers-American* Aerial Ladders. Mail the coupon NOW for complete information.

POWERS *American* DIVISION

PUBLIC UTILITY BODIES AND EQUIPMENT
McCABE-POWERS AUTO BODY COMPANY
HOME OFFICE: 5900 N. Broadway, St. Louis 15, Mo.
WESTERN OFFICE: Latham Square Building, Oakland 12, Calif.

CLIP THIS COUPON AND ATTACH TO YOUR LETTERHEAD

McCABE-POWERS AUTO BODY COMPANY • 5900 N. Broadway • St. Louis 15, Mo.

Please send me details on the following:

SERIES 5510 REVOLVING AERIAL LADDER ( ) 23' 6" ( ) 26' 6" ( ) 30' 6"

☐ Line Construction Bodies	☐ Wire Reels	☐ _____
☐ General Service Bodies	☐ Pole Trailers	☐ _____
☐ Light Duty Maintenance Bodies	☐ Hydraulic Towers	☐ _____

Name_____

Company_____

Address_____

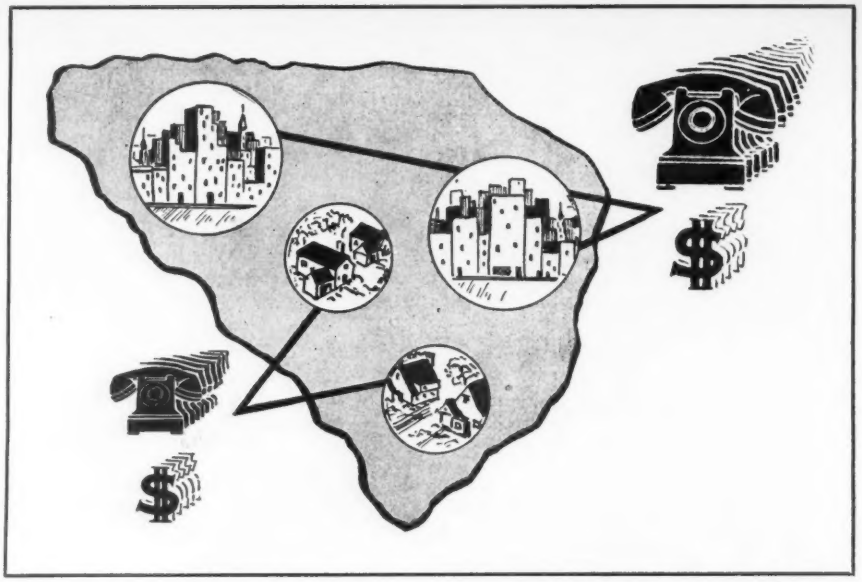
City_____ Zone_____ State_____

76

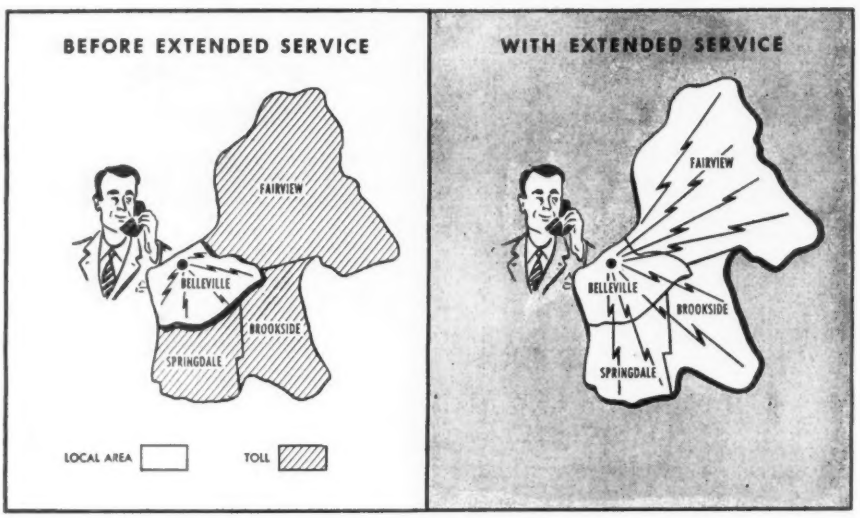
paper to discuss either the necessity for adequate revenues or the means of determining the amounts required. It must be emphasized, however, that the telephone company has no passkey to Fort Knox. It has no means of obtaining revenues except through the charges paid by customers, and its dollars, like everyone else's, are worth only half what they used to be. So the rate engineers must be sure, first of all, that the new rates applied to the telephones in service and the chargeable local and toll messages will, in fact, produce the required amount of money—neither more nor less—as nearly as can be estimated.

The rate engineers also know that revenues from some types of services are more stable than from others. Toll traffic, for example, is greatly stimulated by such occurrences as the war in Korea and the consequent defense activities. Consequently, toll traffic and toll revenues may be expected to level off when these activities are curtailed. Revenues derived from monthly exchange rates, on the other hand, are less likely to be seriously affected. Incidentally, the probable stability of future revenues was one consideration, though a minor one, which favored eliminating the toll charge between Fairview and Belleville and substituting extended-area service covered by the monthly exchange rate.

The objective of adequate and stable revenues for the company does not conflict with other objectives which mean more and better service to customers. In fact, they are opposite faces of the same coin. If the company does not obtain adequate revenues, it cannot furnish satisfactory service. If customers are not satisfied, the company cannot grow and keep financially healthy. So let's see how telephone rates do some of the other jobs assigned them.



Within a state, telephone users pay like rates for comparable kinds and amounts of service.



Extended service gives the customers many more calls at a lower cost per call to both company and customer.

More Telephones

ALMOST ANY business likes to attract as many customers as possible, but it is only in the telephone field that the added customers increase the value of the product.

The Browns' refrigerator and washing machine do their work regardless of whether the neighbors have these conveniences or not. Mrs. Brown gets an extra kick out of her new fur jacket just because none of her friends has one like it. But, if the Browns' telephone were the only one in town, it would be of no use to them at all. It is more useful and worth more to them than it was a few years ago, because the baby sitter, the handyman, and lots of other people they want to call have had telephones put in recently. So rates which attract more and more new telephone subscribers benefit not only them but also other telephone users.

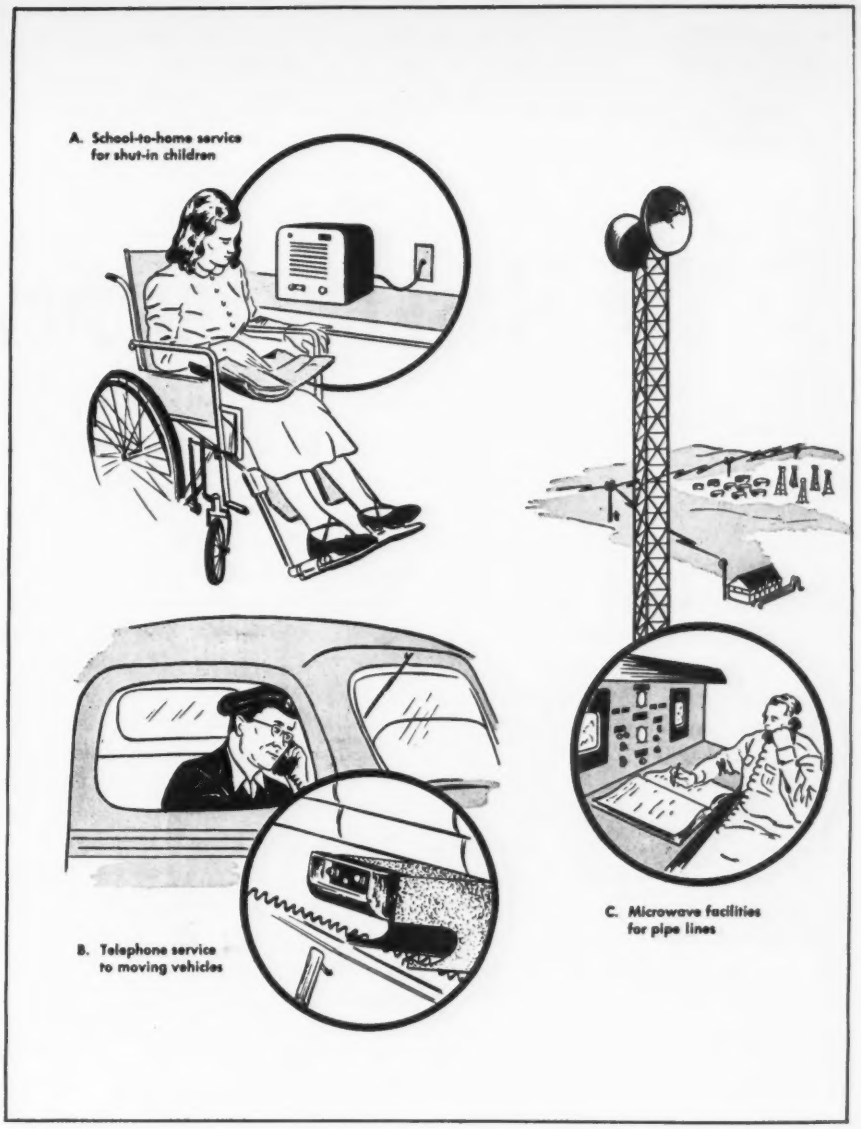
What are the rate treatments especially designed to do this? One is the classification of telephone service between business and residence. The telephone is of great value to business concerns, large and small. It brings in customers and saves time and money far in excess of telephone charges. So almost any business man would think it very poor economy to try to get along without a telephone. On the other hand, some moderate-income families might not be able to afford telephone service if residence rates were the same as those charged business establishments. So basic residence rates are made lower than business, in order to build up a large residence development. This, in turn, benefits the business customer and is the reason why the Browns' home telephone costs less per day than does a pack of cigarettes.

Another way of attracting low-income families to join the telephone system is by offering party-line service. In Belleville, four-party residence service can be had for $1.75 a month less than the Browns' individual line. It may be this very low rate which encourages the Browns' baby sitter and handyman to have home telephones.

These types of rate treatment, de-

signed to encourage residence development, have been common for many years in this country. In many European countries, by contrast, business and residence rates are the same, and party-line service is rarely furnished. This may account, at least in part, for the fact that so many more of the homes in this country have telephone service.

Promotional rates are available to business as well as residence customers. In Belleville, for example, most business customers have flat-rate individual-line service, entitling them to an unlimited number of local calls. In addition, to make sure that every business man has a high-quality telephone service within his reach, the telephone company also offers a business message-rate service at a low monthly rate for a limited number of local messages, with an added charge for each additional message. Even the smallest business can afford this service.


A. School-to-home service for shut-in children
B. Telephone service to moving vehicles
C. Microwave facilities for pipe lines

Telephone companies offer facilities and services at appropriate rates to meet the needs of customers who have special requirements.

More Telephone Calls

BELL SYSTEM rate schedules are designed to encourage people not only to have telephones but to use them; to make telephoning an essential part of their everyday way of living and doing business.

Even the seemingly useless calls—Johnny chatting with the girl friend, Betty and Joan giggling over their homework, little Susan babbling to grandma—are important to the people involved. The more that people use their telephones the more satisfaction they get from them and the more anxious they are always to have a telephone.

"Flat rates," which permit customers to make as many local calls as they wish at a fixed monthly charge, are the most effective means of encouraging customers to make the greatest use of their telephones.

They are particularly effective in the case of residence service. Experience indicates that residence customers with flat-rate service make about twice as many local calls as those who have message-rate service.

Customers like flat-rate service and are willing to pay the higher rates required because they enjoy freedom of use and get so much service. Take the Brown family, for instance. Jim Brown likes their flat-rate service because he knows in advance just what his monthly local charge will be and he doesn't have to check up on the youngsters to keep them from running up his bill. Mother certainly appreciates it when she has to call a long list of club members. Johnny and Betty are sure their social lives would be wrecked without free access to the telephone. Even five-year-old Susan rounds up the neighboring cow-girls by telephone.

This is all to the good as far as the telephone company is concerned. Nothing is more hopeful for the future of our business than the intense interest and desire of young people to use the telephone.

Extended-area service is another type of rate treatment designed to encourage greater use of the telephone. Where there is a good deal of community interest between towns, customers are glad to pay a somewhat higher monthly charge for the wider calling privilege. With the new extended service, Jim Brown will call his mother every evening from now on. Betty hopes several boys in the other towns are going to call her for dates. Mrs. Brown will do more of her out-of-town shopping by telephone. Even if the extended-service charge is a bit higher than their former local rate plus former toll charges, no one minds, because they will all get so much more for their money.

Special Services and Facilities

SOME CUSTOMERS have needs for special services or for facilities different from those of the average telephone user. The telephone

Please turn to page 74)

The Markets For New Capital

By A. W. KIMBER

THE SHORT TERM money market is a mystery to most people. Few of us know what it is, and what the price movements in it mean in terms of general banking conditions and in the prices of other securities.

The leader in this market is the Treasury discount bills which run uniformly for 91 days, maturing every week, and of which approximately $17,208 million are outstanding. The bills bear no interest, but are sold on a discount basis, and are quoted by their rate per annum to maturity, as 1.983%, 2.041% and the like. The higher the rate the higher the money cost, the lower the rate the lower the money cost.

These bills are sold at auction every Tuesday, and are dated the following Thursday. Applications are received from around $2,000 million, each for a specified block at a given rate, and the Treasury accepts $1,200 million to $1,500 million, beginning with the lowest cost and working up. The rate designated for each issue is the average of the bills sold.

In addition to the foregoing, the Treasury has outstanding two issues of bills of slightly longer term, the tax anticipation series, of which $2,502 million were issued October 8, 1952 and $2,002 were issued November 21, 1952, due March 18 and June 19, 1953 respectively. These dates roughly coincide with the March 15 and June 15 corporate income tax payment dates; but as these bills were sold for cash the effect is that the Treasury borrowed in 1952 from taxpayers $4,504 million to be due from them in 1953, and will accept these bills at par in payment of taxes due on the due dates. The addition of these two amounts, $17,208 million and $4,504 million, makes the $21,712 million which the Trreasury reported as outstanding on January 2, 1953. In the Treasury statement these tax anticipation bills are grouped with the weekly bills.

A year earlier, on January 2, 1952, the bills were outstanding $15,520 million, plus $2,482 million of tax anticipation series due March and June, 1952, a total of $18,102 million. The discount rates at that time ranged between 1.576% and 1.646%. This rate lately has run somewhat over 2.164%. Thus the amount of the debt in this form increased last year, and so did the cost of the money.

These bills are held mostly by corporations and banks, over all the country. They have an active over-the-counter market. Their price movements are determined by much the same conditions which determine the prices of the longer term government bonds, and they in turn determine the yield basis upon which corporates sell. But the short term market is more sensitive and flexible.

Falling due in 1953 the Treasury also had three issues of certificates of indebtedness, due February, June and August, aggregate principal amount $16,712 million, and next December 1 a further $10,542 million. The first bite of this package was the $8,868 million 1.875% which matured February 15. For some time the authorities have felt that the amount of bills outstanding was too high. For years under preceding Treasury administration the Treasury has pursued the policy of issuing short-term paper, because of its low interest cost, thus keeping the cost of the United States debt service low. But with the new administration, a new deal was involved. There came due on February 15, 1953 $8.9 billion of 1.875% certificates, and in exchange the Treasury offered 2.25% one year certificates, or 2.50% five year 10-month bonds, and of course holders of the old certificates could turn them in for cash. The result was $8,112 million, or over 91% of the maturity issue was exchanged for the 2.25% one year certificates, subscriptions for the bonds totaled $619 million, and only $137 million were turned in for cash. That is the most complete rollover for any issue of this size since 1944.

The $8,112 million of new one year certificates represented the holders of short term securities who wanted to remain in short term securities. Of these the Federal Reserve Banks held $3.7 billion, and of course the board wanted to continue its holdings in short-term paper. As such the Board could more readily liquidate if it should become necessary to do so in the event of a threatening recession or other emergency.

In the week to week price fluctuations of these bills, seasonal influences play an important role. During the recent pre-Christmas season, for example, when demands on the banks for accommodation became urgent and money was tight, the rates paid on the bills rose to 2.228% (average). It was thought at the time

that as money flowed back to the banks, the situation would ease and the average rate would return to about where it had been, 1.735% to 1.836% in October, but up to the end of February this had not happened. The rate was still around 2.164 percent.

A disturbing influence was the action of the Federal Reserve system in mid-January in raising its discount rate to 2% from the 1¾% theretofore effective. This 2% represents the rate at which the Federal Reserve banks lend to each other from their reserve balances with the Reserve system. But there was no immediate increase in the rates at which the banks loaned to prime customers.

Long term issues of United States government 2.50% bonds slipped to their lowest levels since they were issued. The Victory loan 2.50% of December 15, 1967-72, the Treasury's longest marketed bond, closed with most dealers quoting them at 94.12 bid. A similar decline was shown on the bank eligible 2.50% of September 15, 1957-72, which also closed at 94.12 bid. Prior to 1951, neither the Victory 2.50% nor the bank 2.50% ever sold below face value, since it was the official policy to support their price whenever the price threatened to hit below par. Beginning in early 1951, however, the Federal Reserve system moved away from supporting the market and these issues of late have been priced on their own.

The probable factor that has been cited most frequently as a cause for the weakened price tendencies of late is the belief that the new administration may replace some of the public debt which matures this year with new long-term obligations. If such new issues were to come along with a 3.00% to 3.25% coupon it might spell even lower prices than those of February 26 for the present bond.

Total new issues of corporate securities offered for cash sale in the United States in 1952 aggregated $9,721 million. This compared with $7,741 million the year before and was the largest amount of such securities sold in any recent year. The total given does not include sales of investment company securities, as these were based on stocks and bonds already outstanding, and to include them in the totals would amount to a duplication.

TABLE I

Telephone Company New Issues

Offerings December 1952 - February 1953

	Amount	Price	Yield
Bonds and Debentures			
December 1952			
Ashtabula Telephone (Ohio)			
1st 3.75% A 1977	750,000	100.00	3.75 %
New England Tel. & Tel.			
Deb. 3.25% 1977	20,000,000	101.721	3.15 %
Florida Telephone			
Deb. 5% 1972	600,000	100.00	5.00 %
General Telephone of Indiana			
1st 3.625% 1982	2,000,000	100.00	3.625%
West Coast Telephone			
Deb. 4.50% 1977	2,500,000	100.00	4.50 %
Bell Telephone of Canada			
1st 4.50% J 1967	40,000,000	100.00	4.50 %
January 1953			
General Telephone of Michigan			
1st 3.625% 1983	2,000,000	100.00	3.625%
Central Telephone			
1st 3.80% 1977	300,000	100.00	3.80 %
Indiana Telephone Corporation			
1st 3.875% 1977	500,000	100.00	3.875%
February 1953			
Florida Telephone			
1st 4% 1978	400,000	100.00	4.00 %
Warwick Valley Telephone (N.Y.)			
1st 4% 1977	275,000	100.00	4.00 %
	No of Shares	**Price**	**Total**
Preferred Stock			
December 1952			
Inter County Tel. & Tel (Florida)			
5% Pfd. $25 Par	6,000	25.00	5.00 %
Texas Telephone			
6% Pfd. $20 Par	25,000	20.00	6.00 %
Common Stock			
December 1952			
Western Light & Telephone			
Com. $10 par (1.60)	1,155,730	31.00	5.16 %
Lorain Telephone (Ohio)			
Com. No par (1.40)	5,000	20.00	7.00 %
January 1953			
California Water & Telephone			
Com. $25 Par (2)	60,000	30.50	6.55 %
Harrisonville Telephone (Illinois)			
Com. $100 Par (4)	1,260	100.00	4.00 %
February 1953			
Chenango & Unadilla Telephone Corp. (N.Y.)			
Com. No par (1.20)	50,000	20.00	6.00 %

Of the total, $3,587 million represented the securities of electric, gas and water and communication issues, as compared with $3,067 million the year before. The 1952 figure was again the largest for any recent year.

The substantial volume of funds raised by corporations in 1952 reflected the large-scale capital expansion programs being undertaken by American industry. The flow of funds for new money purposes exceeded that of any previous year on record. While available data for the year 1929 indicated total securities offerings were slightly over $10,000 million, securities of investment and holding companies were predominate in the 1929 financing, and it is estimated that only a little over $2,000 million were offered to finance additions to plant, equipment and inventory.

(Continued on next page)

In 1952 new securities provided about 28% of the total amount estimated to have been spent by corporations for plant and equipment purposes, the remainder being provided by retained earnings and depreciation accruals. It is estimated that gas and electric companies obtained over 60% of the funds needed for 1952 expansion programs from security issues, while communication companies obtained over 50% of their requirements in the securities markets.

A breakdown of the total shows that $7,725 million was obtained through bonds and notes as against $5,691 million last year, the 1952 figures again being the largest on record. But both the 1952 and 1951 figures include each about $400 million convertible debentures of American Telephone & Telegraph Company, which are included in the total bonds and notes, and left there despite a large proportion of these two issues converted into stock. Inasmuch as the sale of these debentures originally was practically the sale of stock, there should be deducted from the two figures respectively $400 million and the addition to the figures for stock of $600 million each year, or that proportion representing respectively the debentures converted in each year.

Bonds and Debentures

AS USUAL, the volume of new securities offered folded up in December, so that the only significant offerings were the $35 million Paicific Telephone & Telegraph 3.25% debentures which were offered at $102.176, a 3.13% basis. In addition there was the $101,758,900 Sinclair Oil convertible subordinated debentures offered at 100, and the 1,155,730 shares of $1.40 preferred stock offered by Commonwealth Edison at 31, the last two having been offered to stockholders.

Debentures of Pacific Telephone & Telegraph were bought by bankers originally at 101.533 on November 25, syndicate was held open till January 9; when it closed an estimated $28 million remained unsold. The debentures were then bid 100.375.

Then there was nothing until about January 15th. In this period bonds made a very poor record: There was $22 million of Ohio Power 30 year 1st mortgage bonds; these bonds had been bought on a January 20 bidding, the bankers paying the utility 102.-08999; on the subsequent public reoffering these 30 year bonds were priced at 102.625 to yield the investor 3.24%. The syndicate was closed February 3, when as much as 75% of the issue, it was estimated, remained unsold. The bonds that day were quoted 101.125 bid. This was the only corporate debt issue of the company.

Bonds of Florida Power Corporation new $15 million 1st mortgage 3.375% were bought by underwriters December 1 at 101.23. The syndicate was held open for six weeks and when closed January 14th the bonds were quoted 99.625 bid. Estimated amount of the issue undistributed when the account broke up was $12,000,000.

Towards the end of the month there came along $25 million J. I. Case Company 25-year debentures and $50 million Ontario Province serial bonds.

In February the market got going on its regular basis. There was $30 million Tennessee Transmission Pipeline 20-year bonds, $25 million May Department Stores sinking fund debentures; all of these were priced low and experienced a satisfactory sale.

Then came along Consolidated Edison of New York with $40 million of debentures and Niagara Mohawk Power Corporation with $25 million of debentures, the former priced at 3.38% and the latter at 3.40%. While the Edison bonds looked like slow movers at first, the demand for the Nigara Mohawk bonds at 3.40% was so urgent that the Edisons were swept up in the rush, thus cleaning up this particular situation.

Now comes Allied Chemical and Dye Corporation with an offering of $200 million of debentures, the largest single debt offering by an industrial company in the history of American finance. There have been other offerings of equal or greater size but they have been placed privately with insurance companies and other special investors. Except for its unusual size, the offering will be distinguished by the fact that it represents an important modification of financing policy. Throughout its history up to this time, this conservative chemical firm has not had securities outstanding other than common stock.

The municipal market has presented an unusual picture. Prices have been on the down grade since the big shake-out of February 1951, and up to February 23 of this year were still going down. In fact prices on that day were the lowest in twelve years, yields the highest. This despite some big issues which were supposed to clear the market; $62.5 million California Toll Bridge Authority in December, and in February there were $111 million Housing Authority bonds and $100 million California Veterans Farm and Home Loan. These issues were priced low and were all reported as having a satisfactory sale.

Besides the foregoing this market lately has had to take up some huge amounts, and bankers have been conservative in pricing them, with the result that the Dow Jones Municipal bond yield, which is the monthly average of 20-year bonds, has continued to sag. Sentiment in the market is pessimistic, especially when bankers look over the list of forthcoming new issues.

Preferred and Common Stock

BY STRONG contrast with the movement of prices in the bond market the price movements in the preferred and common stock markets have been quite strong. Despite the huge new offerings, practically all of these new issues have moved easily into investors hands. These included the 1,155,730 shares $1.40 Commonwealth Edison preferred, the $10 million Ohio Power preferred, the $15 million Ohio Edison preferred, the 479,846 shares of Ohio Edison common, the 617,679 shares Consumers Power common, the 500,000 shares Southern California Edison common, and the 600,000 shares Toledo Edison common. These all moved out readily, having been realistically priced.

Plenty more is on the way, but the bankers are not afraid of them. They will not need to be unless and until the preferred and common stock markets fall victims to the movement that has been going on in the bond market. We have already seen that, coincident with the increase in the cost of money as represented by the Treasury discount bill rate, the long-term government bond market has sagged, the municipal market has gone to pieces, and the corporate bond market has almost done the same thing. The latest rate, a 3.40% basis for the Aa rated bonds Conslodiated Edison and Niagara Mohawk Power, is a case in point.—THE END.

Section XV-C of Mr. Reed's article discusses — (1) Operating features of relays, (2) Proper maintenance, and (3) Adjustment of relays.

MODERN CENTRAL OFFICE MAINTENANCE

By JOHN S. REED

BEFORE adjustment is attempted, the relays should be checked for satisfactory mechanical adjustment with all screws tight, springs straight or having gradual bow within specified limits, and contacts aligned within maximum limits. The residual air gap and heel piece air gap (where present) should have the correct spacings specified in the adjustment sheet. The method of checking these air gaps is shown in Figures 234 and 235.

The armature stroke, or degree of movement of the armature, and the spacing between the springs operated by the armature should be carefully determined by gauging as shown in Figure 236. The proper thickness gauge is inserted in the armature air gap, between the residual and the pole piece. The relay is then energized to close the armature on the gauge. With one specified gauge (for example, 0.006 inch) the make (normally open) springs should just close. With another specified gauge (for example, 0.010 inch) the break (normally closed) springs should just open as determined by visual inspection. The proper gauges for the different make, break, make-before-break, and break-make conditions are indicated in the adjustment sheet. If necessary, the springs are bent in or out as required to obtain the desired contact make or break with the proper thickness gauges. A spring bender is used for adjusting the springs as shown in Figure 236.

This gauging procedure will accurately position the springs for proper relay operation; provided that the armature springs have the proper tension. This tension is checked by operating the relay between high and low current limits; the first producing an "operate" condition and the second, a "non-operate" condition. If necessary, which is seldom the case, the armature lever is bent in or out with a bending tool as shown in Figure 237. Care must be taken not to distort the lever from the particular shape produced in the manufacture of the relay. If required, the armature stop is adjusted as shown in Figure 238.

The various tools commonly employed for adjusting relays are shown in Figure 239.

Current Flow Sets Used in Relay Adjustments

TYPES OF current flow sets employed in marginal tests of relays are illustrated in Figures 240 and 241. The simple set shown in Figure 240 can be used as a resistance box when the battery voltage is held to an exact specified value (46 volts).

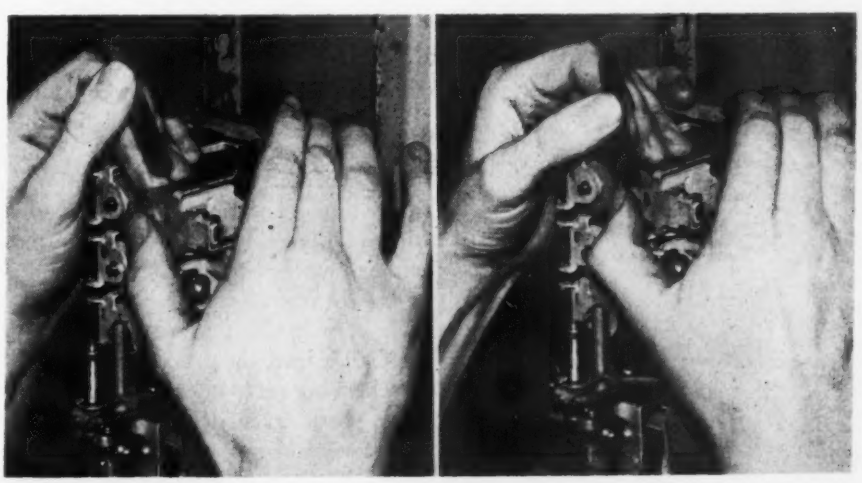


Fig. 234—Checking amount of residual in air gap of automatic switch relay. Left — Before inserting thickness gauge, showing hole in gauge through which residual screw is to enter. Right — Gauging with residual screw through hole in gauge.

Fig. 235—Gauging heel piece air gap of automatic switch relay.

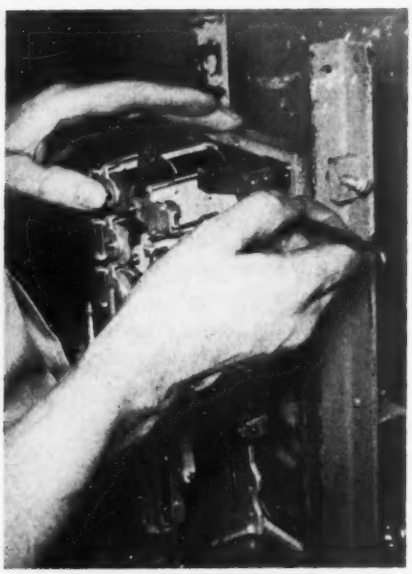


Fig. 236—Using thickness gauge to determine proper contact spacing and adjusting springs with spring bender to make spacing conform to adjustment specification.

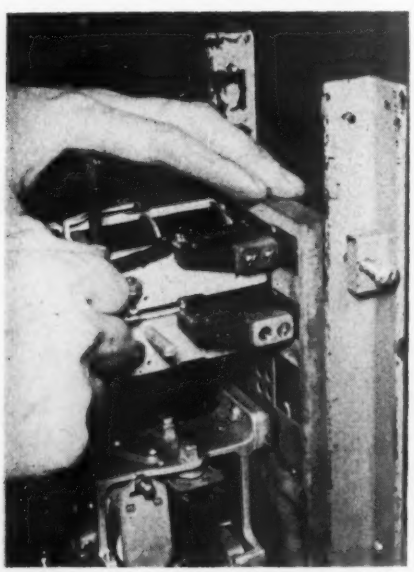


Fig. 237—Adjusting armature lever on automatic switch relay with bending tool.

The resistance values are set up for operate and non-operate conditions as given in the adjustment sheet. If the central office battery voltage varies or is at a different value, the proper resistance keys are operated to obtain the desired current values for operate or non-operate conditions as indicated on the milliammeter.

The more elaborate set depicted in Figure 241 consists of a milliammeter and a number of variable resistances arranged to be connected in series with the office battery and the winding of the relay to be tested. Since it is necessary to obtain a number of operating conditions for testing relays and to change from one condition to another as rapidly as possible, provision is made for obtaining different current values by means of two slide-type rheostats having four independently connected slides, and a series of fixed resistances cut in and out of the circuit by suitable switches. Four non-locking, push-type keys with shorting switches are provided for closing the circuit to the winding of the relay under test. The basic circuit of this type of current flow set is shown in Figure 242.

This current flow set is prepared for making the desired tests as follows: After connecting the set to winding of the relay under test and the external current source, the shorting switch on the first rheostat key is closed and the corresponding slides on the rheostats are adjusted to establish a desired current value for the first operating condition. The shorting switch is then opened and the one on the next key in order is closed. The second set of slides is adjusted to obtain a different current value to set up the next operating condition. The other keys and rheostat slides are handled in the same manner if necessary to obtain other current values for additional operating conditions. The operation of the relay can then be tested under successively different conditions by operating the proper rheostat keys in the desired order.

To illustrate the procedure followed in checking relay operation in a common battery switchboard, suppose that a certain type of toll switchboard relay is to operate under the following conditions: Soak on 120 milliamperes for 10 seconds, release on 0.5

Fig. 238—Using armature stop bender.

Fig. 239—Tools employed for adjusting relays. From top down — duck bill or spring adjusting pliers, two types of spring benders, armature stop bender, armature bender, two sizes of thickness gauges, and flat hex wrench for adjusting residual screws.

. . . If you want Mr. Reed's articles on "Central Office Maintenance" reprinted in book form please let us know. If demand warrants, we'll get the job done for you.

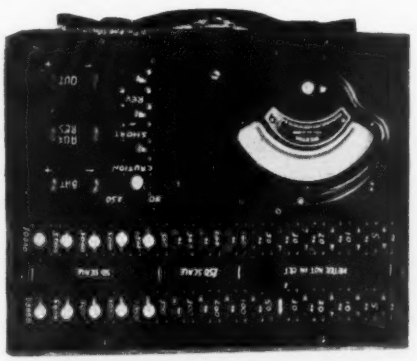
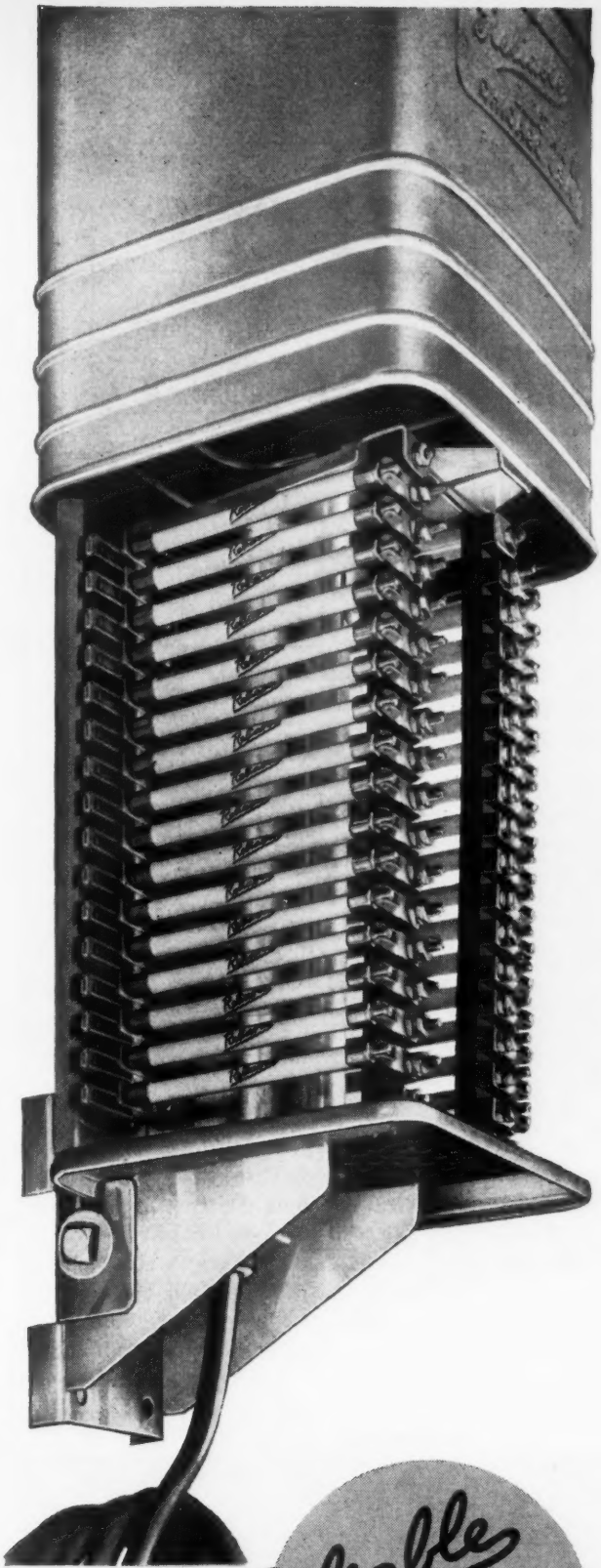


Fig. 240—Simple current flow set designed for setting up operate and non-operate conditions to check operation of automatic switch relays.



The "B-27" Protected Terminal

Unequalled in installation, maintenance and operational advantages, sturdiness of construction and excellence of design. Men are increasingly calling for "B-27's" wherever Protected Cable Terminals are needed . . . and this preference will most often originate with the lineman, the man who knows equipment by its performance.

The "B-27" has long been famous for its detachable mounting bracket (a decided advantage in installing) . . . its P-495 Self-Cleaning Sawtooth Discharge Blocks (a maintenance and service advantage) . . . its front binding posts (for ease of connecting) . . . its rigid, sliding, weatherproof cover (for maximum weather protection) and many other features that are field acclaimed. Another Reliable Product.

RELIABLE ELECTRIC COMPANY
3145 CARROLL AVENUE
CHICAGO 12, ILLINOIS

Reliable

Telephone Protective and Terminal Equipment for all Station, Line and Central Office Needs.

OVER 45 YEARS SERVICE TO THE TELEPHONE INDUSTRY

milliampere in three seconds, operate on 40 milliamperes, hold at least five seconds when the current flow is reduced to 2 milliamperes, and then release.

After connecting the relay winding and the office battery to the set terminals, the No. 1 slides on the rheostats are adjusted with the shorting switch on key No. 1 closed to obtain a current of 120 milliamperes. With this shorting switch opened and

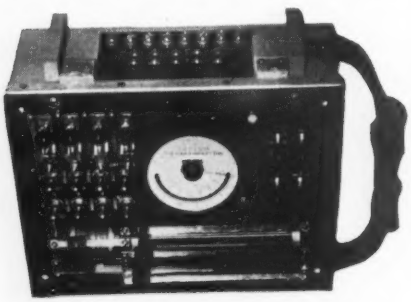


Fig. 241—Another type of current flow set designed to provide up to four different operating conditions for checking relay operation. Note the four telegraph type keys with shorting switches.

the one on key No. 2 closed, the No. 2 slides are adjusted to obtain 0.5 milliampere. In a similiar manner, slides Nos. 3 and 4 are adjusted to result in current values of 2 milliamperes and 40 milliamperes, respectively. With all of the shorting switches open, the set is now ready for operation.

Key No. 1 is depressed for 10 seconds to soak the relay on 120 milliamperes. This key is then released and key No. 2 quickly depressed to obtain 0.5 milliampere. The relay should release within 3 seconds. Key No. 3 is next depressed to operate the relay on 40 milliamperes, then released, and No. 4 quickly depressed for 2 milliamperes current flow in the relay winding. This being a hold condition, the relay should not release before the end of five seconds. The operations described may be repeated if necessary until adjustments of the springs and the armature result in correct relay operation.

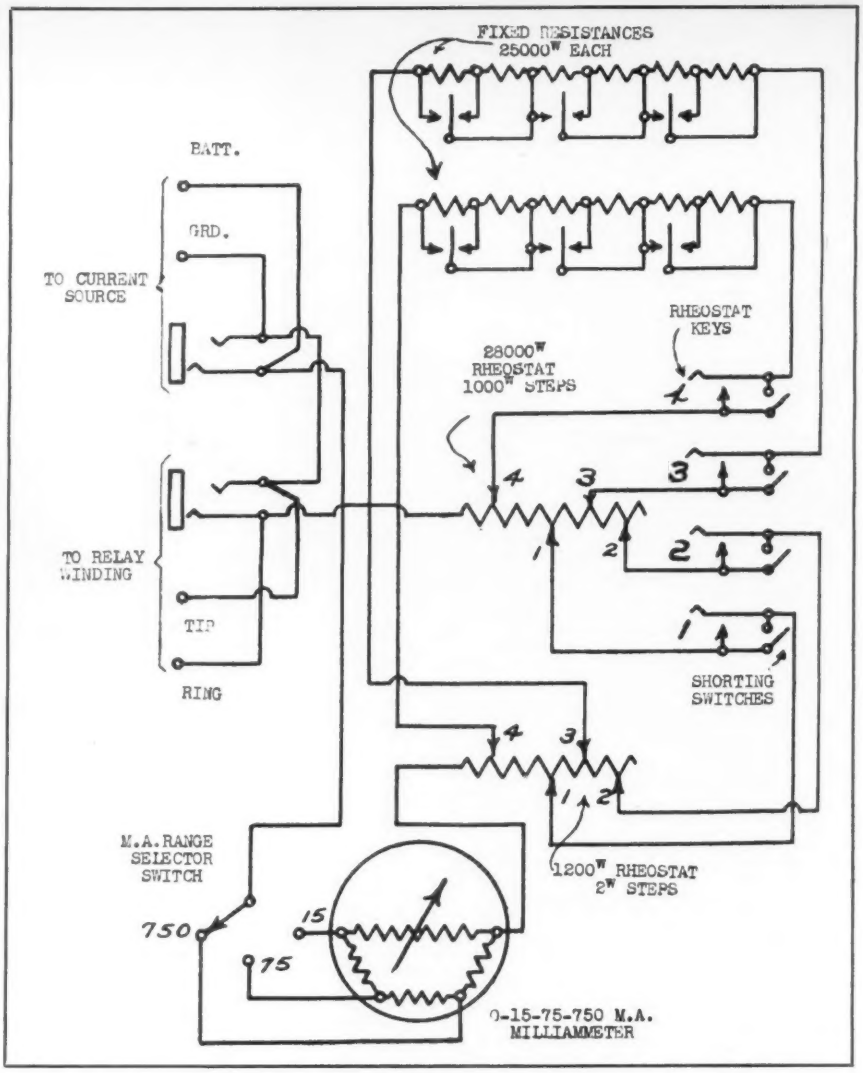


Fig. 242—Basic circuit of current flow set illustrated in Figure 241.

Another procedure makes use of current interruptions of one-third to one-half second intervals to test hold and release characteristics of the relays. Adjustments of the relay are made so that the relay will not release on short current interruptions, but will do so on slightly longer interruptions. Current interruptions are made by tapping the keys at the desired rate.

With reference to the terms used to denote operating conditions of

Please turn to page 74)

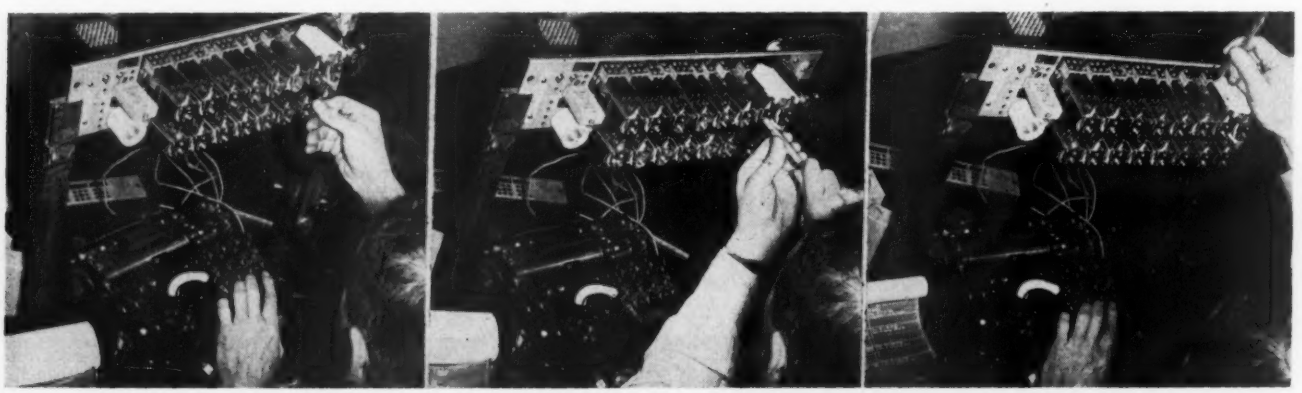


Fig. 243—Steps in using current flow set to adjust manual type relays. Left — Checking with thickness gauge in armature air gap. Center — Adjusting residual screw. Right — Bending armature spring with spring bender to meet adjustment specification.

"The important thing about a problem is not in its solution but the strength we gain in finding the solution."

THE MANAGEMENT FORUM

Conducted by JOHN G. REYNOLDS

This month your Management Forum discusses — (1) Advertising for Independent telephone companies, and (2) obtaining public approval of the rate increase application.

"Advertising"

THE PROBLEM:—"To advertise or not to advertise . . . ."

THE SOLUTION—Our correspondent phrased this problem a bit different than we state it above. He asked—"Why should I advertise?" From that question he went on to say —"Everyone knows what a telephone is and there is no direct competitor with which our company must engage in a business contest for services or equipment . . . So why tell people about something which only our particular company sells and about which everyone knows ? ? ?"

The answer is telephone companies advertise because they want more than public knowledge of their "product"; they want public understanding of it. Furthermore, telephone companies have an obligation to inform the public of new developments, and of changes in service and rates. Advertising is a way of visiting each subscriber individually, explaining to him policies and problems, to gain his understanding of why the company conducts its business the way it does.

In other words—a company advertises—*because it is just plain good business to do so.*

A telephone company is concerned not only with getting a telephone into a subscriber's home, but with its use by him once it is there. Proper use of the telephone results in good telephone service for everyone and contributes to the efficient and economical operations of the business. Improper use of the telephone results in poor telephone service and waste.

Check Your Budget—You'll See
Telephone Service is Still a Big Bargain
Look at the basic items in your cost of living and you'll see that they have risen far beyond the cost of telephone service. Your telephone bill in no way reflects the increased cost of furnishing you with service. Every item of operating cost—wages—taxes—materials—have risen far beyond our regulated service rates.
In today's lopsided picture, telephone service is a value far out of proportion to its too-low cost. With properly adjusted rates, telephone service will still be a big bargain.
COMPANY IMPRINT

Tell your story through regular ads in your local paper. — (Ad prepared by Telephone Advertising Institute.)

Because it is physically impossible and economically unsound to visit each subscriber in person, a company should do the next best thing: contact subscribers through the usual mass media which find their way, in one form or another, into its customers' lives. Contact them through advertisements in newspapers, radio, television, directories, monthly folders inserted with customer bills, booklets, leaflets, window displays, and various exhibits and posters.

Economical? Using all those means of advertising? Yes. Using the facilities and services of the industry's own *Telephone Advertising Institute* 205 *N. La Salle St., Chicago* 1, *Ill.*, the cost of reaching the public through these mass communications channels adds up to a few cents per telephone per mmonth!

Through the Institute's carefully prepared ads you can tell your subscribers about the correct way to use the telephone and how certain practices can improve telephone service. By enumerating and describing these practices which improve service, you help keep costs down.

Such advertising serves to refresh public knowledge and understanding of the fundamentals of good telephone service. It reminds telephone users that telephone service is improved when a person dials properly,

when a person calls another party by number, when he looks up the correct telephone number in the telephone directory instead of first calling Information or disturbing another party with a wrong number; when persons on party lines are courteous and considerate of their party line neighbors, when they answer promptly. It saves money. For one example, when you increase the total of your long distance calls placed by telephone number it results in faster service and a direct saving in operating costs. Another reminder to further assure good telephone service is the company's advertising of closing dates of all telephone directories. This advertising gives customers ample opportunity to list all changes and corrections desired before the directories go to press. An accurate telephone directory necessarily results in better service to all subscribers and in a saving in operating costs.

Advertising keeps your subscribers informed of your policies, problems, plans, and progress. An informed public is easier to serve; it knows what you are trying to do to make telephone service better; it knows the progress you are making in meeting its demands for service.

Your company makes every effort to meet demands for new service or for a change in service, because service essentially is your "product". And when you are able to follow through on plans to expand telephone service, you should tell the public in the areas affected about those plans. Through advertising you can inform the public what your company has done and is doing to expand and improve telephone service. This type of advertising helps answer subscribers' questions resulting in saving many telephoned and personal inquiries to your business office.

Advertising will help you keep your subscribers informed of such problems as the company's need for rate adjustments. The rising cost of living strikes every phase of our lives, and like other businesses your company, too, must charge higher prices to keep it in sound financial health. When circumstances force you to seek higher prices for your product, a frank explanation to the public is in order and is something they have a right to expect.

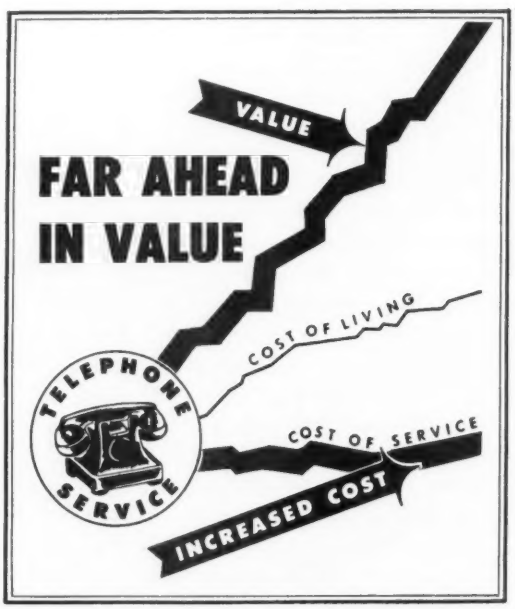
Advertising brings to the public's attention the various services and items of equipment available, which mean more value to the telephone user.

Advertising can tell the public about the people who work for your company. It can remind them that your employees are their good neighbors, that your employees are good citizens, both on and off the job, that it is through their willing and efficient service that telephone service is good. This advertising promotes the good reputation of your employ-

Independents and Independence

Anyone wishing to prove his point on how small business can flourish under free enterprise need only to point to the U. S. Independent telephone industry. The more than 5,500 Independent telephone companies, of which we are one, serve over 8 million telephones covering two-thirds of the U. S. Area. Independently-owned and operated telephone companies do a total volume of $360,000,000, making this one of America's biggest "little businesses."

These companies have pioneered many of the technical advances which have given us world leadership in telephone service. Truly, independence and the "Independents" go hand in hand.



Far Behind in Cost

One look at the basic items in today's cost of living will show you that they have risen far beyond the cost of telephone service. And while the costs of providing you with good service have increased, the price you pay has lagged far behind.

Today's telephone service also gives you more value for your money. The many new telephones installed every day broaden your reach—you can call more people—more people can call you.

This fact is clear—telephone service, today's big bargain, is far ahead in value, far behind in cost.

The above ads, from a recent series provided subscribers to services of the Telephone Advertising Institute (TAI) are typical of the excellent ads released by TAI.

ees, gives their jobs more prestige. It also makes easier the recruiting of the high-caliber personnel needed to operate the telephone business

Why advertise? ? ? Because, through advertising, you visit your public in the most economical way possible. Through advertising you are able to tell each subscriber personally about your business, to help him use the service to his own best advantage, to gain his understanding that your business is run economically, efficiently, and in the public interest by able, sincere, and friendly people!

"Rate Increases"

THE PROBLEM:—Obtaining public approval of rate increases.

THE SOLUTION:—We checked *J. R. Carter*, manager, of the *Huntsville, (Mo.) Telephone Co.*, and found a sure-fire system for obtaining complete public support for rate increases.

Mr. Carter bought the Huntsville exchange on May 1, 1952. Huntsville has a population of 1600 and at that time the exchange served approximately 360 magneto city subscribers, 24 company-owned rural, and 185 switched rural. No major changes had been made in the system for many years and the level of service, particularly in the rural area, was not high. Rates had been increased once since the "*beginning of time.*" The top business rate was $3.50 per month, the subscriber-owned rural, 75 cents per month.

Throughout the summer and early fall, Mr. Carter held meetings with his farm line subscribers to determine what improvements and what type of service they desired. The answer was 100% for company owned dial service. He also told the Rotary and Community Clubs that the company was planning improvements, and that he would appreciate any suggestions. The attitude everywhere was "*make it as good as possible.*"

"In August", Mr. Carter said, "we arranged for financing and began a program of rebuilding the city system to be followed by new rural lines. We contracted for dial equipment and enough handsets and other equipment to complete the job."

"It appeared that the best way to get by the rate problem was in two steps: One when the new dial handset and metallic line replaced the grounded wall equipment, and again when the dial equipment is cut into service. I again explained the program to all groups that would listen and we have filed for commission approval of the entire program. Top business rate is $5.50; single-party residence, $4.50; 5-party residence, $3.25; and 10-party company-owned, rural, $3.50. The enclosed letters are the result of these last meetings and were of course filed with our application. . . "

Approval appears certain, because Carter's plans were endorsed by Huntsville civic leaders and organizations.

Among letters urging commission approval were those from the Huntsville board of alderman and the Rotary and Community clubs.

The Huntsville City Council wrote —" . . . . We have also reviewed their proposal to increase the rates for telephone service whenever the handset type telephones and two-wire lines are installed, and again when the dial equipment is put into operation. Representatives of the telephone company have also explained their arrangement for financing the proposed changes thru one of their equipment suppliers.

"After study and discussion of all the proposed changes, the Council has authorized me to write urging you to grant whatever permission is required by the Huntsville Telephone Company to make the above changes in our service. Neither do we object to the two increases in rates which will accompany these changes, as the rates to be charged appear to be in line with those charged in neighboring communities. Futhermore, we see no detrimental effects of their arrangement for financing.

"We feel that the people of Huntsville appreciate the effort being made by the telephone company to modernize and improve the service, and we shall appreciate anything you might do to expedite their application for permission to make the above changes.

Yours very truly,
C. T. White, Mayor."

The Huntsville Rotary Club wrote—" . . . . Our special committee, appointed to investigate the proposed changes in the telephone service, and to review the new schedule of rates to be charged, wishes to inform you that we heartily favor the improvements in our service, the program to provide modern service for the farmers of this area, and the proposed change to dial type equipment. Futhermore, we feel that the rates to be charged are not excessive, and we believe that there should be no objection to them.

"We would appreciate any aid or permission you might give the Huntsville Telephone Company which would allow them to conclude their program of improvement at the earliest possible date. . . . "

The Huntsville Community Club also backed Carter's rate increase application with a letter which stated— " . . . .It appears that the proposed rates are on a level with those charged in neighboring towns, and would be fair both to the company and to the patrons in view of the amount of money to be invested and the type of service to be rendered. We offer no objection to the new rates being established for the Huntsville Community. . . . "

And there's how our progressive Independent obtained public approval of his rate increase application. Briefly, he won his case by: (1) Starting an ambitious service improvement program; (2) telling his subscribers of his plans; (3) selling them on those plans; (4) taking his need for increased rates direct to Huntsville residents; and (5) obtaining the support of subscribers and civic bodies. What worked for Mr. Carter in Huntsville should work in any other town in the good old U. S. A.

A Carnegie Formula

THE following formula is credited to Carnegie as the way to manage any kind of business:

1. Organize—which means to have the right man in the right place.
2. Deputize—which is to give the man full authority to do the job you hired him for.
3. Supervise—which means to keep after the whole gang to see that they do what they are supposed to do—*Personnel Journal.*

BEN GILMER (standing far left), vice president and general manager of Northwestern Bell, Minneapolis, was host at a luncheon honoring visitors to the Minnesota Telephone Association Convention from Manitoba Telephone System, Winnipeg, Canada.

Minnesota Convention Report

By JOHN WITHY

THE LARGEST turnout in history of the Minnesota Telephone Association thronged the Hotel St. Paul in St. Paul, Minnesota, last month for the group's 44th annual convention, with the delegates showing great interest in the variety of telephone problems that were discussed at the sessions.

Keith W. Vogt, secretary of the Minnesota association, said the official attendance was just under 600 people. This, he said, was an all-time record. The convention was held February 17-18-19.

Emphasis was on such problems — common to all telephone folk — as the need for adequate rates to maintain reasonable earning records and permit continued expansion of telephone service; the need for toll compensation adjustments; the increasing tax burden on the telephone industry; and the desirability of taking the telephone subscriber into confidence so that he understands the telephone company's problems.

Harold R. Bollinger of Waconia, manager of the Pioneer Telephone Co., was elected president of the association by the board of directors on the last day of the convention. He succeeds Elnathan Gates of Minneapolis, general manager of Minnesota Telephone Co., who has been M-T-A president for the past two years.

The directors also reelected Irving Todd of Hastings as vice-president and Keith Vogt as secretary-treasurer.

Earlier, the delegates had elected four new members to the board of directors — two of whom replaced their fathers on the board and a third, his grandfather. These included C. F. Marvin, who replaced his father, F. C. Marvin of Zumbrota; P. M. Ferguson, Jr., who replaced his father, P. M. Ferguson of Mankato; and Glenn J. Dwelle, who replaced his grandfather, Glenn M. Dwelle of Lake City. Fourth new director was Kenneth Johnson, manager of Brice-lyn Mutual Telephone Co., who succeeded H. E. Clayton of Glencoe.

Three other directors were re-elected to new three year terms, including H. James Boyd of Alexandria,

This attractive display of a miniature pole treating plant at the Minnesota convention entranced MRS. CHARLES CASHEL, left, wife of the secretary-treasurer of Worthington Telephone Co., and CHARLES JOY, manager of Fairmont Telephone Co., both of whom are well known in Minnesota telephone circles. The display was staged at the convention by the National Pole Division of Minnesota & Ontario Paper Co.

Carl Ostby of Erskine and Eldon Eckles of Blue Earth.

Retiring president Gates set the keynote for the convention in his opening address, when he said that the commercial companies "must tell the public and telephone employes" about their problems and "stop being Casper Milquetoasts."

"Timid souls, we accept our tax burdens meekly," Mr. Gates said. "We weep among ouselves about the unfair competition of the tax-blessed co-ops. We cry aloud in agony as the vise of higher and higher operating costs compared with fixed rates squeezes us tighter and tighter.

"But we don't carry our story to the public. First, we've got to educate our employes and inform the public about this knotty problem of rates. Then we must carry our story to the public. We must fight for our rights to obtain adequate rates, better toll commissions and equal taxes to enable us to improve our service to our public, our responsibilities to our employes."

Touching on the REA situation, Mr. Gates pointed out that one of the companies he represents has received the largest loan yet made to a commercial company in Minnesota. Then he added:

"There definitely is a place in sparsely-settled rural areas for REA, because of high construction costs and the difficulty of securing private capital for telephone expansion work in those areas. But when they begin to roam out of their own backyards and begin competing with private telephone companies, that's when trouble begins. And it's not trouble for the REA co-op — it's trouble for privately-owned companies."

Mr. Gates also discussed the federal excise tax situation, which came in for attention by a number of speakers and which was the subject of official convention action on the final day by passage of a special resolution. This resolution called on the Minnesota congressional delegation to work for removing the federal excise tax.

"The 25 percent excise tax on long distance calls over 25 cents is the highest non-luxury tax assessed any service or commodity by the federal government today," he said. "This, plus the 15 percent tax on telephone rentals, costs Minnesota telephone users $12,000,000 a year."

Two veterans of Minnesota's Independent telephone industry dropped in to the display room of Peatrophone during the Minnesota convention in St. Paul and received a demonstration of how this new type of equipment works. They are IRVING TODD, seated, and FRED PFAENDER. Irving is vice-president of the Minnesota association, and serves as secretary-treasurer of the Hastings Telephone Co. Fred has long been active in M-T-A affairs, and is president of New Ulm Rural Telephone Co. Between them they have 103 years of service to the telephone industry. — ***(Minneapolis Star Photo.)***

Edwin M. Blakeslee of Santa Monica, Calif., president of the United States Independent Telephone Association, was next on the speaker's stand, and devoted a considerable part of his talk to a report on USITA activities in Washington.

Discussing the toll compensation problem, Mr. Blakeslee pointed out that there has been no adjustment on long-distance calls between Bell and the independents since 1946, "and no major revision since 1943." In the meantime, he said, minimum wages have gone up; wage levels all along the line have been increased in order to preserve differentials; substantially-higher corporate income taxes have been legislated; equipment and supply costs have been increased enormously; and the total costs of handling, originating and terminating traffic have increased "in staggering sums."

He reiterated plans of the USITA to give strong support to a bill before Congress which would shift the cost of pole and line removals from telephone companies to the federal government — where federally-aided highways are being constructed or improved; to work for reduction or abolition of excise taxes; and to work for lower corporate income taxes.

Ray W. Smith, editor of *Telephone Engineer Publications*, next told the delegates that 1953 will be a "fateful year" for the telephone industry — which he said still faces the "colossal" job of meeting an unprecedented demand for new telephone serviec.

"Two factors will determine whether that fate is good or bad," Mr. Smith said. "One is the vigor and perseverance with which telephone companies insist that their rates for service be sufficient to produce revenue adequate for their needs. The other is the extent to which regulatory commissions measure up to their responsibilities to deal with telephone rates, revenues and earnings on a basis of reality."

An interesting presentation by a non-industry speaker was next, in the person of George Grim, roving columnist for the Minneapolis Tribune.

Mr. Grim gave a close analysis of some of the problems facing the Eisenhower administration in the Far East, and then recounted some of his experiences with telephones in his travels around the world. One such instance was "The Most Valuable Telephone" at Taejon, in Korea, where one telephone had to serve 15 correspondents seeking to file their stories back to Tokyo.

"This was a military telephone, and had to be preempted for understandable emergencies from time to time," Mr. Grim said. "Each of us was permitted five minutes at the phone. By the end of the week the situation was so hopeless that I flew (hitchhiking on three different planes) the length of Korea, across the Sea of Japan and to Tokyo.

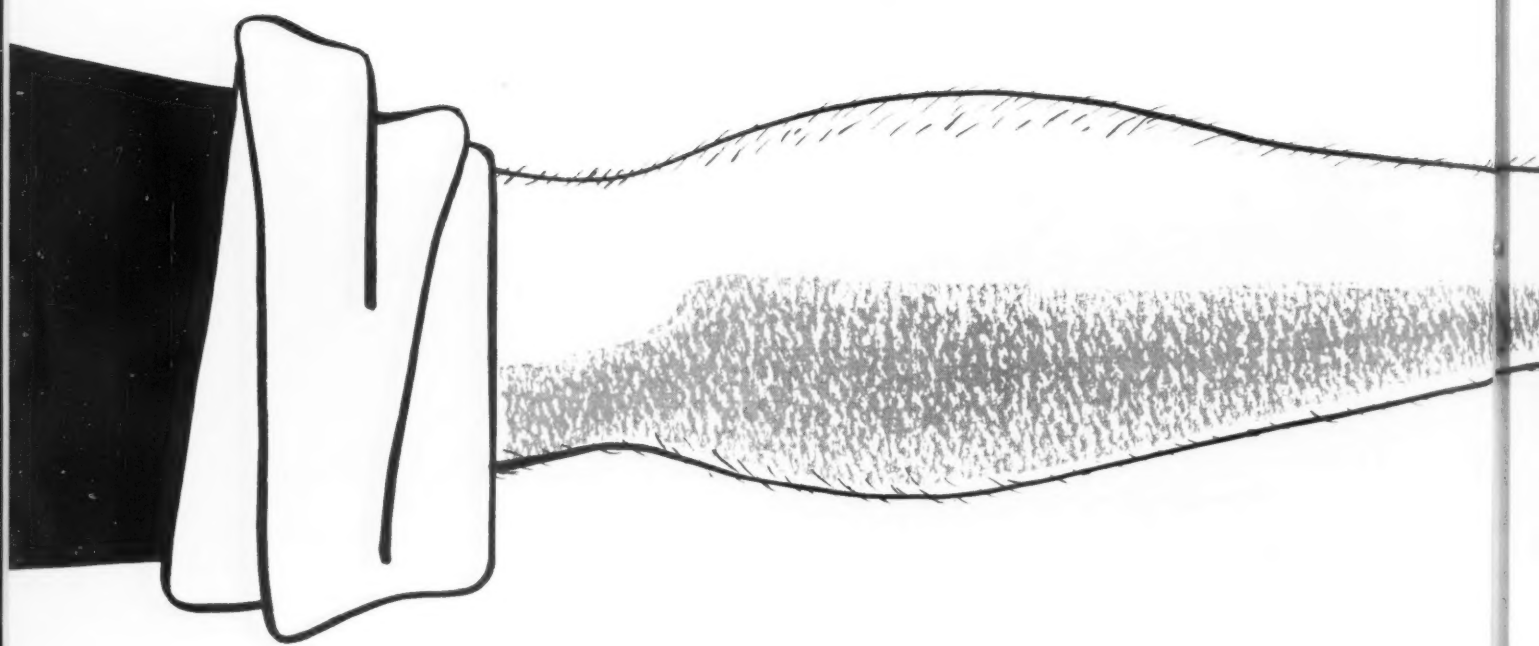
"There I handed my copy to the military transmitter, had a shower and steak dinner, and hitchhiked back to Korea by plane again. The entire trip took two days, and I hadn't missed a single turn at the telephone."

After viewing a motion picture of floods at Mankato, Minnesota, two years ago, shown by P. M. Ferguson, Jr., of Mankato Citizens Telephone Company, the delegates heard an informative talk by Daniel Seitz of York Telephone and Telegraph Company, York, Pa., on planning and construction of dial conversions, and the important uses of testing equipment in plant operations.

J. C. Crowley, Jr., of St. Paul, consultant to the association and its secretary for 30 years, closed the day's program with a warning that telephone companies should not go into

(Please turn to page 81)

Nothing up OUR sleeve . . .



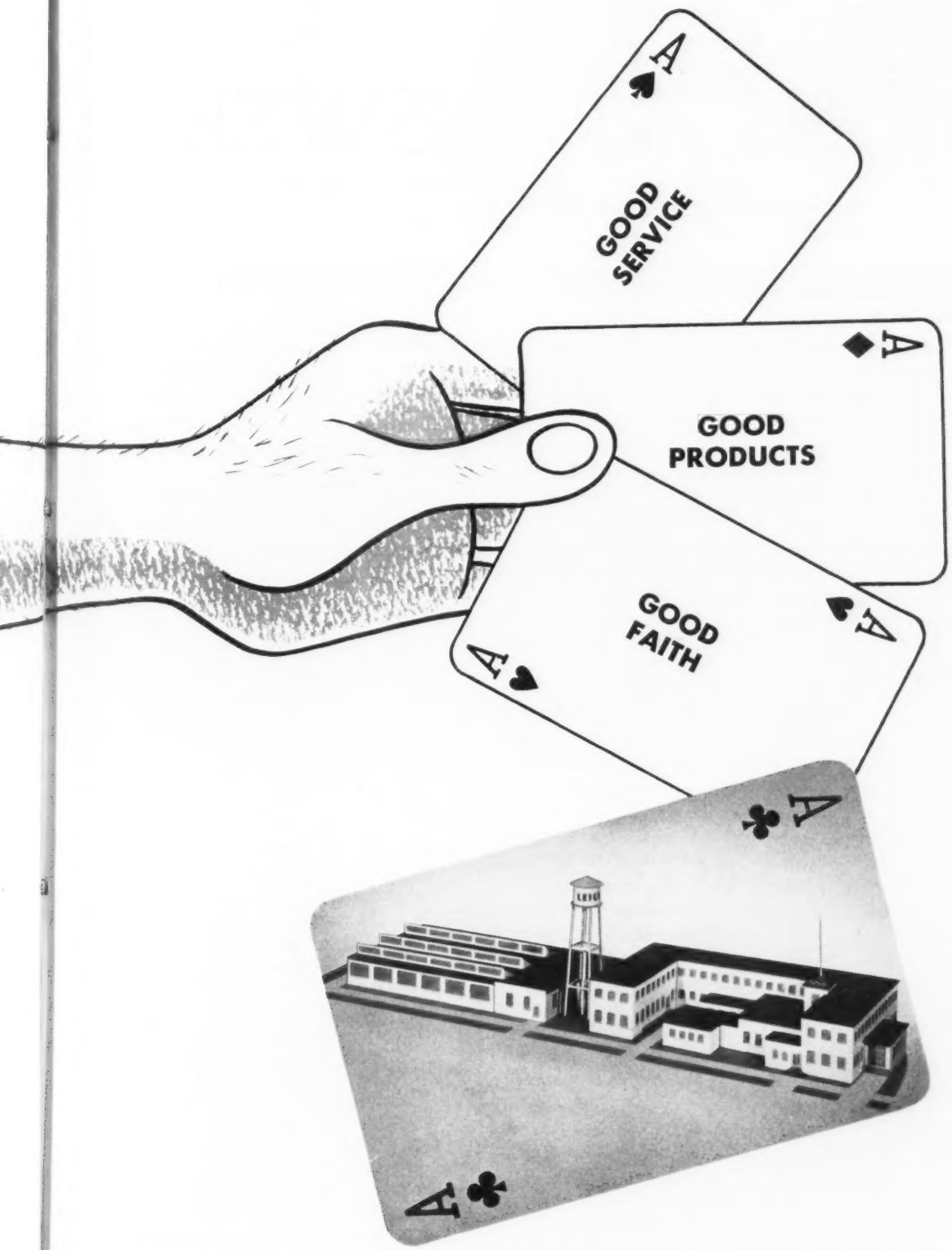
Our business is to make good telephone equipment, give good service . . . and to tell you the truth about it.

You build your business by keeping faith with your customers. If you promise them something that a supplier promises you . . . your promise is no better than that of your supplier.

We'd rather lose an order than make glowing promises that cannot be fulfilled.

And we believe you'll find it more pleasant *and profitable* to do business with us. Leich Sales Corporation, 427 W. Randolph, Chicago 6, Illinois.

LEICH



H

MANUFACTURERS OF TELEPHONES, SWITCHBOARDS AND RELATED APPARATUS SINCE 1907

MEMBER OF THE GENERAL TELEPHONE SYSTEM

In this issue Mr. Mitchell discusses — (A) Printers Pie, and (B) Problems Confronting a Small Telephone Company.

QUESTIONS and ANSWERS

Conducted by JAY G. MITCHELL

QUESTION: — *In the last issue of* TELEPHONE ENGINEER AND MANAGEMENT, *in the Questions and Answers column, the third question is not entirely clear because of what we suspect is a typographical error. The third sentence of the third question reads as follows in part. "We will start with two* VJ *pin cross arms, etc." Probably this should have read "We will start with two ten-pin cross arms, etc." but we are interested in having the exact meaning of this sentence cleared up and cannot find any one that can interpret what* VJ *cross arms may be.*

ANSWER: — Thank you very much for writing in and directing attention to this error as it is purely a typographical error such as will creep into printed material occasionally without any apparent reason. The sentence in question in the original copy was as follows. "We will start with two 10 pin cross arms and may want to add two more circuits later on making a total of ten to start at the cable terminal."

This should make the inquiry clear.

QUESTION: — *We are a small incorporated company having some* 280 *magneto stations and giving very good service* 16 *hours a day plus* 8 *hours emergency service. We own the property where we have the switchboard and hire a lineman and his wife as Chief Operator.*

We are located 14 *miles West of a highly industrialized medium size city where high wages are paid. We have* 275 *telephones on* 25 *rural lines and five private lines for business. Our toll center is reached by three toll lines and four free lines. A good part of our Farmer business goes to another neighboring town to which we have one free line. We also have a free line to each of two other towns and a toll line to a third. Our toll center and the town to which much of our Farmer business goes are both planning to install dial equipment within the next twelve months. We will be left with a good magneto system (and we think it is as good as any magneto system) with only* 16 *hours of service. We have trouble keeping day operators. Our rates are* $3.00 *per month on party lines and at this rate we can just maintain our plant and keep up. Our questions are: Should we attempt to go automatic? What should we do about free service? Would it be profitable for us to go automatic? Is one type of automatic any better than another? How could we best finance one?*

Are we justified in spending a lot of time and effort and some one else's money or should we sell out or give our company to a larger company?

We are very much interested in our community and want to keep our local government at home and at the same time we want to give the best possible service as cheaply as possible. We have also contacted the small company committee of the telephone association in our state. I know this isn't a new problem to your engineers and we would appreciate your views and answers to our questions. Thanking you in advance. Stamped reply envelope not enclosed.

ANSWER: — For obvious reasons this inquiry has been slightly paraphrased so that the only possible answer will not disclose the nature of the problems that confront this telephone company. As the situation is understood from reading this letter of inquiry certain things will be required before any decision on the several problems outlined will be possible. The principal facts that must be developed are as follows:

(A)—Does this telephone company own its switchboard and telephones with the pole lines and line wire?

(B)—Are the rural multiparty lines metallic or grounded?

(C)—Are the pole lines equipped with cross arms sufficiently to permit rearrangement of the connected telephone stations so that there will not be more than ten parties to the line (eight would be better yet)?

(D)—Does the book figure for the plant represent its value *and its physical* condition?

(E)—What are the average per station revenues per year?

(F)—What are the average per station expenses per year including an allowance for depreciation?

(G)—What is the average allowance in dollars per year per station for depreciation?

(H)—Why does this company maintain toll lines and free

lines to other telephone offices?

(I)—What is the average toll revenue per station per year?

(J)—What is the outstanding Capital Stock?

(K)—What is the outstanding Bond Issue?

(L)—The rural multiparty rate is $3.00 per station per month. What is the rate for business and residence individual line service?

(M)—What is the amount of the outstanding ACCOUNTS RECEIVABLE for telephone service?

(N)—How many calls are handled per day?

(O)—How much cable of each size is comprised in the plant?

(P)—Is the company's service area definitely prescribed or does the service of other telephone companies overlap that of this company?

(Q)—What size and kind of wire is used in the subscribers' line circuits?

(R)—What size and kind of wire is used in the toll circuits?

(S)—Are the subscribers' telephone bills payable monthly or at longer intervals.

(T)—What is the present population of the city or town in which this company supplies telephone service?

(U)—How many stockholders now own stock in the company?

(V)—What is the amount of the outstanding BILL AND ACCOUNTS PAYABLE?

There are many factors that this company will have to take into consideration that have not been specifically set out above. In the state in which it is located there is a very satisfactory Public Utility Commission Law and it appears to QUESTIONS AND ANSWERS that this company will need a very considerable amount of expert help from the COMMISSION and also from other sources.

A telephone plant of this kind is a sizable investment, it is a going concern and should not sacrifice the property which has been undoubtedly built up over a long period. Any small telephone plant is an important item in the overall communications system of the country at large and it is important that the service rendered be preserved without interruption if at all possible. It is our advice that this company face the situation as a

(Please turn to page 58)

HIGHWAY HD EARTH BORING MACHINE

Digs holes 9" to 20" in diameter, 7' to 10' deep.

Sets poles 40' to 45' in length 2000 to 2500 pounds in weight

IN ANY SOIL . . .

The famous Highway Model HD Earth Boring Machine digs holes quickly and easily in any soil. Light enough for mounting on one and one-half ton truck. Or, can also be mounted on a tractor. Requires only six feet of platform space. Operates from truck platform where operator has clear vision. Quickly adjusted to dig at any angle. Single drive from engine furnishes all power.

A 2500-pound capacity winch and a pole derrick to handle 40-foot to 45-foot poles can be furnished with the Model HD as optional equipment. No separate drive from engine is needed for operation of their accessories.

Also available are the Model HC Earth Boring Machine for extra-heavy duty work and the Model P. E. Digger, an economical, completely portable machine for the occasional user.

Send today for your complete Highway Public Utility Equipment catalog. Or, for quick, first-hand information, call or visit the friendly Highway Distributor or Factory Branch nearest you.

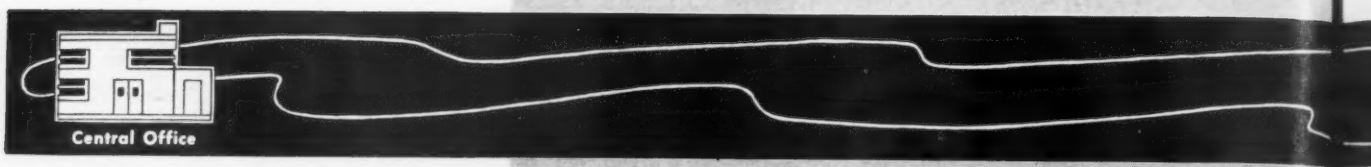
Illustration shows Highway HD Boring Machine in operation. From position on truck platform operator is assured complete visibility Simple dual-levers give complete control at all times.

HIGHWAY TRAILER COMPANY

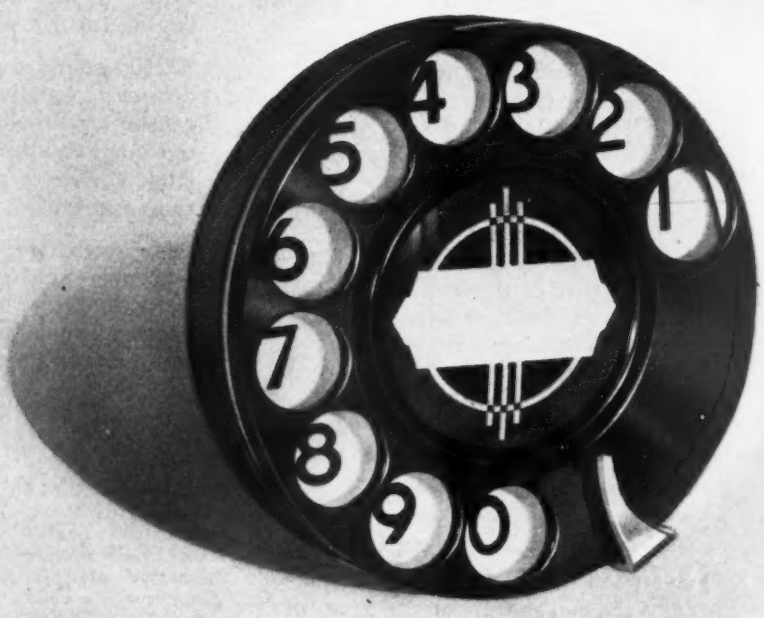
Headquarters: Edgerton, Wisconsin

PLANTS AT EDGERTON, WISCONSIN—STOUGHTON, WISCONSIN

The nation's largest manufacturer of Utility Truck Bodies • Earth Boring Machines • Pole and Cable Reel Trailers • Winches • Power Take-offs • Service Accessories



MAKE *Big Savings*



use Automatic's new

TYPE 51

'the silent dial'

ON L-O-N-G LOOPS!

Type 51 Dial
helps you effect **substantial** cable plant savings!

How does it afford such economies?
Because Type 51's special cam
and exceptionally stable impulse spring assembly
insure a uniform impulse ratio.
Because its lightweight, worm-driven governor
keeps pulsing speed within close limits.
Uniform impulse ratio and closely-maintained pulsing speed
assure dependable operation of switching equipment
over long loops of high resistance and capacitance.
With today's high cable costs,
these features become advantages of outstanding importance;
they enable you to use smaller-gauge, **lower cost** cable!

No other dial today can offer you as much—
yet, users of Automatic Electric dials
have enjoyed these and other economies for 25 years.
For example, Type 51's mirror-finish worm, pawl silencer,
and precision-made gears give it an unusually quiet operation
that guarantees low wear—and **minimum maintenance.**
Order smooth, silent Type 51 Dials today.
They'll bring you BIG SAVINGS in **many** ways!

AUTOMATIC ELECTRIC

Originators and Developers of the Strowger Step-by-Step "Director" for Register-Sender-Translator Operation . . . Machine Switching Automatic Dial Systems
Makers of Telephone, Signaling and Communication Apparatus . . . Electrical Engineers, Designers and Consultants

Distributors in U. S. and Possessions: Automatic Electric Sales Corporation
Export Distributors: International Automatic Electric Corporation
1033 West Van Buren Street, Chicago 7, U. S. A.

KLEIN

Talk to any old-timer on the job and he'll tell you Klein equipment is his choice for comfort—for safety—for service. Look for the familiar Klein trade-mark on pliers, safety straps and belts, climbers, grips and wrenches. Klein has been serving the electrical industry "Since 1857."

ASK YOUR SUPPLIER

Foreign Distributor: International Standard Electric Corp., New York

Write for your free copy of the Klein Pocket Tool Guide today!

"Since 1857"

Mathias KLEIN & Sons
Established 1857 — Chicago, Ill., U.S.A.
3200 BELMONT AVE., CHICAGO 18, ILL.

(Continued from page 55)

new, and possibly larger problem, and work out the details in such a way as to retain its established place in the communications field of the nation. For that reason this long inquiry has been included ahead of some others that were received previously in the hope that the problem may receive vigorous and effective attention at once. The several headings listed above are not, of course, offered as a complete and finished plan for this company to follow. The letter of inquiry gave no clues as to the essential facts that must be developed if they have not already been worked out. The letter of inquiry *does* point out very clearly that something must be done and it is believed that the something that must be done will fall, principally, into the answers to the several questions listed.

In all probability, whatever is the final action, it will be necessary to put into effect a schedule of increased rates in the plant of this telephone system. We hope that the suggested divisions of the task ahead as roughly outlined above will aid this company to work out its own solution so that it can retain its place in the communication system of our country, avoid sacrificing its hard won prestige, retain its full property value and continue to give good service.

Industry News Briefs

(Continued from page 20)

communications industry's efforts to encourage safe driving and safe work habits have resulted in the lowest ratio of accidents to miles driven and hours worked recorded by any major industry.

Bell System Proposes 18% Boost In "A" and "B"

RECEIPT OF a proposal from the Bell System for a new toll compensation schedule after three days of meetings between the US Independent Telephone Association Toll Compensation Committee and Bell System representatives, was announced late Feb. 20, by the USITA Executive Committee.

The USITA Executive Committee announced that "It is understood that the American Telephone & Telegraph Co. will recommend to the Bell associated companies that if the new contracts are accepted within 90 days after submission to Independent companies by the associated company representatives, they should become effective Jan. 1, 1953."

The Bell System proposal would call for increases of "A" and "B" commissions paid to Independents of $19,500,000 a year, with a resulting decrease in prorate payments of Independents of not more than $1,500,000, both based on estimated 1953 traffic volume.

For the nation as a whole, the proposed toll compensation plan would result in an average increase of 18% to Independent telephone companies.

W. Roy Jarmon, president of the General Telephone Corp. of the Northwest, heads the USITA Toll Compensation Committee, which conducted the negotiations with AT&T Vice President George L. Best and Assistant Vice Pres. Robert P. Judy.

Property Transfers:

CHARLES CITY, IA. — Sale of properties of the Charles City Cooperative Telephone Co. to the Northwestern Bell Telephone Co., effective Jan. 1, 1953, has been announced.

The purchase price was $67,743.32. The cooperative serves more than 700 telephones in the rural areas surrounding Charles City, while Northwestern Bell provides service within the city.

GENESEO, KANS. — Mr. and Mrs. Wayne Baldwin, of Galva, Kans., recently bought the *Home Telephone Co.*, of Geneseo. They also own the exchange at Galva, Kans.

This is the first change in ownership of the company since A. W. Crosby built the exchange fifty years ago.

SUSANVILLE, NEV. — Negotiations have been completed for sale of *Lassen Telephone Co.* to *Citizens Utilities Co. of California.* This announcement was made by A. V. Schiller, owner-manager of Lassen Telephone Co., which serves most of Honey Lake Valley.

● Whichever rabbit wins the bet, both of them will have done plenty of hopping by the time they reach the next pole. Those poles aren't strung with ordinary BB wire, but with Amertel 135 . . . so they're a long way apart.

The high strength of Amertel 135 permits much longer spans. Thus you don't have to dig so many holes or set so many poles, and you need less pole hardware. Both at the time of installation and later on, when you're worrying about maintenance, Amertel 135 requires fewer man-hours of labor per mile and fewer truck hours—and you save money.

Voice transmission is better, too, and Amertel 135 has low electrical resistance. We'll be glad to send you more detailed information if you'll write the American Steel & Wire Division, Rockefeller Building, Cleveland 13, Ohio.

AMERICAN STEEL & WIRE DIVISION, UNITED STATES STEEL CORPORATION
GENERAL OFFICES: CLEVELAND, OHIO

COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO, PACIFIC COAST DISTRIBUTORS
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA., SOUTHERN DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

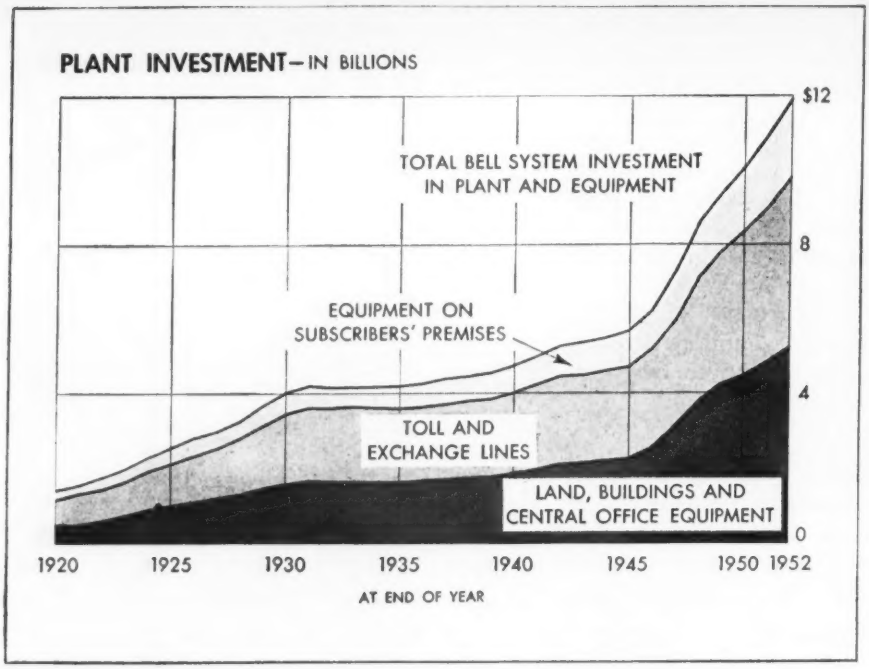
"Bet you five bucks... it's at least 150 hops to the next pole."

LOOK FOR THIS TAG
It is your assurance of highest quality wire.

U·S·S AMERTEL

TELEPHONE & TELEGRAPH WIRE

UNITED STATES STEEL



PRESSURE OF HIGHER COSTS AFFECTS AMERICAN TEL. EARNINGS IN 1952

THE TELEPHONE served more homes and businesses, more farms, more factories and more people in 1952, the American Telephone & Telegraph Co. stated February 24 in its annual report.

The nation's need for service was greater than ever before and telephone men and women responded ably to the need. The Bell System companies cared for some 15,000,000 orders to install, remove and relocate telephones; the net gain was about two million, including 245,000 in rural areas, and there are now 39,400,000 telephones in operations — 17½ million more than at the end of World War II. Long distance conversations last year increased about five per cent over 1951 and were 70 per cent above the level of 1945.

"Telephone service for defense continued to get first attention throughout the year," Cleo F. Craig, president of the company, said. "The Army, Navy and Air Force called on Bell Telephone Laboratories and Western Electric, our research and manufacturing organizations, to perform an increasingly large amount of work, including the development, engineering and production of military communication equipment and advanced electronic weapon systems.

"New equipment and methods are playing a more and more important part in enabling telephone men and women to better serve their communities and the nation. New facilities installed during the year were the best we have ever put into use. Our research work opened up new promise for the future."

$400 Million Increase In Operating Revenues

EARNINGS on total Bell System capital were at the rate of 5.9 per cent, substantially the same as the 5.8 earned the year before. Consolidated System earnings per share of AT&T stock were $11.45, compared with $11.76.

There was an average of 35,528,000 shares outstanding — 4,500,000 more than in 1951. The increase in the number of shares was due mainly to conversion of many convertible bonds into stock. As a result, the proportion of debt in Bell System capital decreased from a little over 44 per cent to about 40 per cent. AT&T share owners increased by 128,000 and at the end of the year totaled 1,220,000.

Total operating revenues for the System were $4 billion, an increase of $400 million over the preceding year. This increase was largely offset by higher operating costs and taxes. Mr. Craig added that although intrastate telephone rates were adjusted upward in 37 states, earnings were adversely affected by the pressure of higher costs. "Better equipment and more efficient operation," he said, "have prevented costs from reaching even higher levels, but technical and operating improvements alone cannot offset the effects of inflation. As a result the telephone companies continue to find it necessary to obtain increases in the rates charged for service."

Taxes Equal $2.85 Per Telephone Per Month

BELL SYSTEM operating taxes were $706 million and Bell customers paid telephone excise taxes amounting to $615 million, bringing total direct taxes on Bell Telephone service last year to $1,321,000,000. This was equal to $2.85 per telephone per month. "We have often pointed out that the telephone bears an unusually heavy tax load," Mr. Craig said, "and we shall continue to present to the taxing authorities our views as to why and how this burden should be reduced. Though the telephone is far from being a luxury, telephone excise taxes are much higher than those imposed on any other essential service or product. They discriminate against telephone users."

Continued Progress In Improving Service

FOUR OUT of five Bell System telephones are now dial instruments and operators dial two out of every five long distance calls straight through to the distant telephone.

A trial of customer long distance dialing in Englewood, New Jersey, has shown that people like this service. Englewood telephone users are able to dial directly about 11 million telephones in a dozen areas from coast to coast. "The Bell companies expect to provide similar service in several other areas in 1953 and 1954," Mr. Craig stated, "and in cooperation with the Independently owned telephone companies of the nation, they will work toward extending it all over the country.

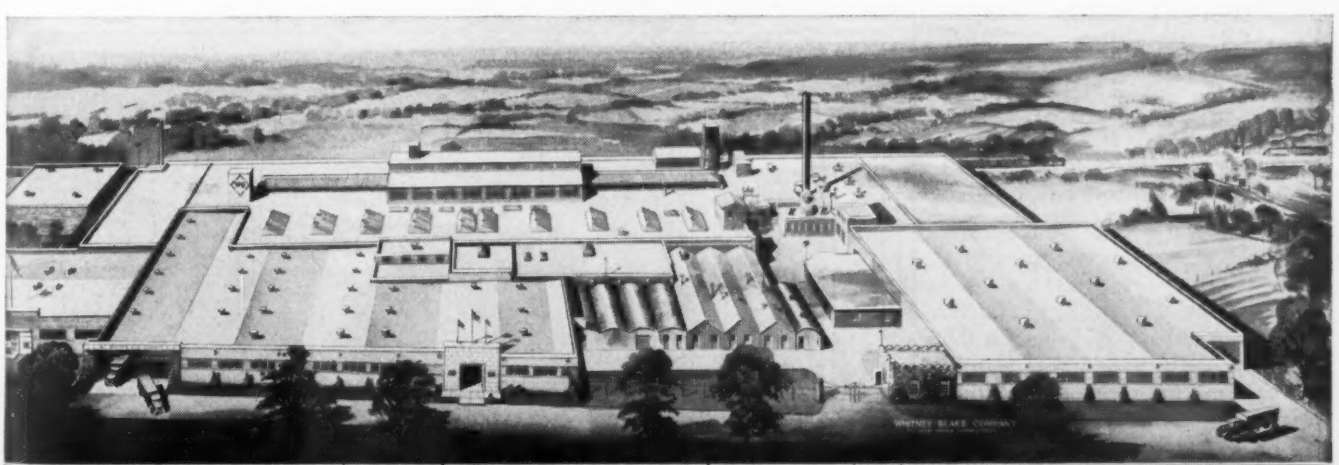
"We placed in service new radio

What's in a Name?

TELEPRENE TELESEAL TELECORD TELEDUCT

Names famous in the Independent Telephone Industry. In each you'll find ever-present Whitney Blake high quality, the result of our research, development and quality control programs.

Through these and other leading developments we have contributed to the well-deserved reputation of the Independent Telephone Industry for dependable service . . . round the clock, year after year.



WELL BUILT WIRES SINCE 1899

WHITNEY BLAKE COMPANY

NEW HAVEN 14, CONNECTICUT

Is there something you want— or don't want?

Why not tell 11,000 telephone men about it? They read FORTNIGHTLY TELEPHONE ENGINEER every month. Many of them receive no other telephone magazine.

IF YOU WANT TO—

—buy an exchange

—sell a telephone exchange

—hire a new employee

—buy used equipment

—sell used equipment

—secure a better position

—let your desires be known through a low cost CLASSIFIED AD in FORTNIGHTLY TELEPHONE ENGINEER.

Rates are reasonable — 15 cents a word, except for Situation Wanted Ads, which are only 5 cents a word. In figuring cost of ads, count each word of address in number of words used. Minimum charge $2.00. Special rates for Display type ads on request.

If you wish replies to your ad to be adressed to FORTNIGHTLY TELEPHONE ENGINEER, count blind address as 4 words. All ads payable on order. Discount of 25% is allowed on ads ordered for 4 or more times: for example —

When you order 4 insertions —pay for 3 insertions.

When you order 8 insertions —pay for 6 insertions.

FORTNIGHTLY TELEPHONE ENGINEER is published on the 1st of each month. Ads should reach us by 15th of preceding month.

Fortnightly

TELEPHONE ENGINEER

7720 Sheridan Road
Chicago 26, Illinois

SOME INTERESTING FACTS ABOUT THE BELL SYSTEM

	1945 Dec. 31	1950 Dec. 31	1951 Dec. 31	1952 Dec. 31
Number of Telephones (a)	22,445,519	35,343,440	37,413,614	39,413,889
Dial Operated	14,504,851	26,700,319	28,950,622	31,194,105
Per cent Dial Operated	64.6	75.5	77.4	79.1
Number of Central Offices	7,374	8,470	8,671	8,870
Miles of Pole Lines	420,000	503,000	519,000	546,000
Miles of Wire:				
In Underground Cable	60,759,000	86,963,000	91,007,000	96,689,000
In Aerial Cable	33,966,000	48,240,000	51,624,000	55,509,000
Open Wire	5,034,000	6,573,000	6,750,000	6,914,000
Total	99,759,000	141,781,000	149,381,000	159,112,000
Average Daily Telephone Conversations* (b)	90,548,000	140,782,000	145,136,000	149,360.000
Total Plant ("000" omitted)	$5,702,057	$10,101,522	$10,949,686	$11,971,436
Operating Revenues ("000" omitted)*	$1,930,889	$3,261,528	$3,639,462	$4,039,664
Number of Employees (c)	474,527	602,466	648,459	692,398
Number of American Tel. and Tel. Co. Share Owners	683,897	985,583	1,092,433	1,220,509

** For year ended December 31.*

(a) Excludes private line telephones numbering 134,279 on December 31, 1952. Including telephones of some 5,300 independently owned connecting telephone companies and additional thousands of connecting rural or farmer lines and systems, the total number of telephones in the United States which can be interconnected is approximately 48,100,000.

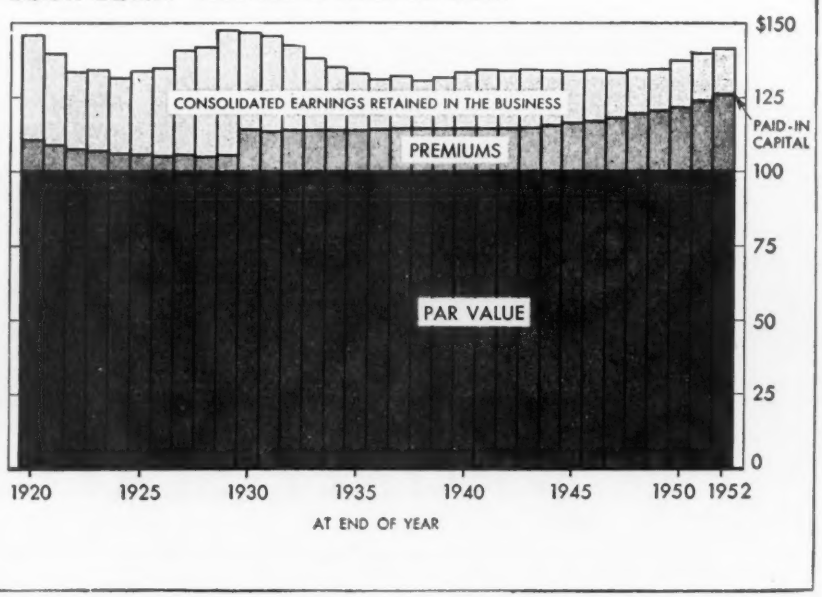
(b) For the year 1952 there were approximately 143,231,000 average daily local conversations and 6,129,000 average daily toll and long distance conversations. During 1952 many calls were reclassified from "toll" to "local," due to enlargement of numerous local calling areas. When the data are adjusted for such reclassifications, there was an increase of 2.8 per cent in local conversations, and 5.2 per cent in toll and long distance conversations, over the year 1951.

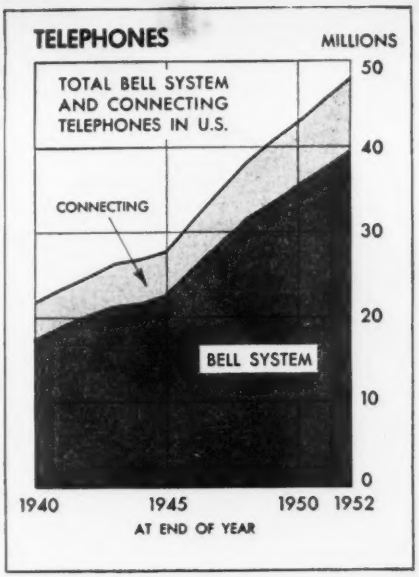
(c) Includes employees of Western Electric Company and Bell Telephone Laboratories.

relay and coaxial cable systems." Mr. Craig added, "these can carry hundreds of telephone messages at the same time and can also carry television programs. At the end of the year long distance television channels served 115 stations in 72 cities and made it possible for more than 90 million people to view network programs."

Four recent developments by Bell Laboratories illustrate current progress in the continuous effort to improve service and hold down cost, Mr. Craig said. One is the transistor, a new kind of electronic device which, although not a vacuum tube, can do many things that vacuum tubes do and many more besides. Other developments include an improved "wire spring relay," a new type of magnetic switch which has longer life, is cheaper to make and operates more reliably; a special tool to connect wires to metal terminals without soldering; and a new carrier system

BOOK EQUITY—PER SHARE OF A.T.&T. CO. STOCK





called the "L3" which increases from 600 to 1,800 the number of conversations each pair of coaxial tubes will handle.

"Today, in the abundance and scope of the service," Mr. Craig concluded, "in its ability to meet new needs, in its importance to the welfare and security of the nation, the value of the telephone has reached a new high." — THE END.

Lincoln T & T Reports Drop In Net Earnings

A DECLINE in net earnings of the Lincoln (Neb.) Telephone & Telegraph Co., was reported by Thomas C. Woods, company president, at the annual stockholders meeting held February 3 in the company's general offices at Lincoln.

Mr. Woods stated that the company's operating revenues for 1952 were $7,916,170, an increase of 5.33% over 1951. However, operating expenses increased 12.2% over 1951. Expenses for 1952, including operating taxes, were $6,916,198. Operating income available for dividends was $759,547, which was $116,495 below the previous year.

President Woods expressed concern over the continued rise in cost of furnishing service.

"It is evident," he said, "that the telephone company has not been immune to the effects of inflation and that an increase in earnings is needed promptly. Our last rate increase was in January of 1950 — slightly over three years ago. Since then we have increased wages three times, and the cost of equipment and supplies has increased materially." He pointed out that telephone rates had advanced far less than living costs generally and that advancing living costs of business would have to be met as they do in the case of individuals.

The company filed an application for rate increases on September 12, 1952, and a hearing before the Nebraska State Railway Commission is pending.

A net gain of 3,989 telephones was reported for 1952. The company also acquired 1,619 telephones through the consolidation of the Crete Telephone Company into LT&T. Altogether the company was serving 111,290 telephones at year end, a gain of 5,608 over 1951.

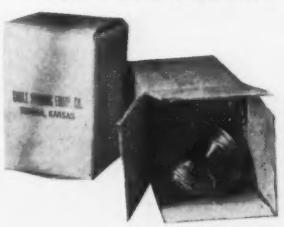
Telephone plant and equipment were reported in a high grade of serviceable condition and much progress was made in the company's program of improvement and addition of facilities. Net additions to plant totaled $2,566,939 and plant in service at year end was $25,824,851. In ad-

(Please turn to page 66)

Here's the Neale Model K Pull Type Spinner—engineered for versatility. It's doing a great job on electric power lines . . . and telephone lines, too! Model K has a maximum capacity of three 2" O.D. cables, and will spin single cable as small as 5/8" O.D. This spinner may be used with either one or two coils of spinning wire, so you may have either a 13" spiral or wire 6½" apart. Model K is furnished with two LC5 Lashing Wire Clamps, tow rope, cable placing dolly, and chest.

Contact your jobber

Use Neale Wire For Best Results

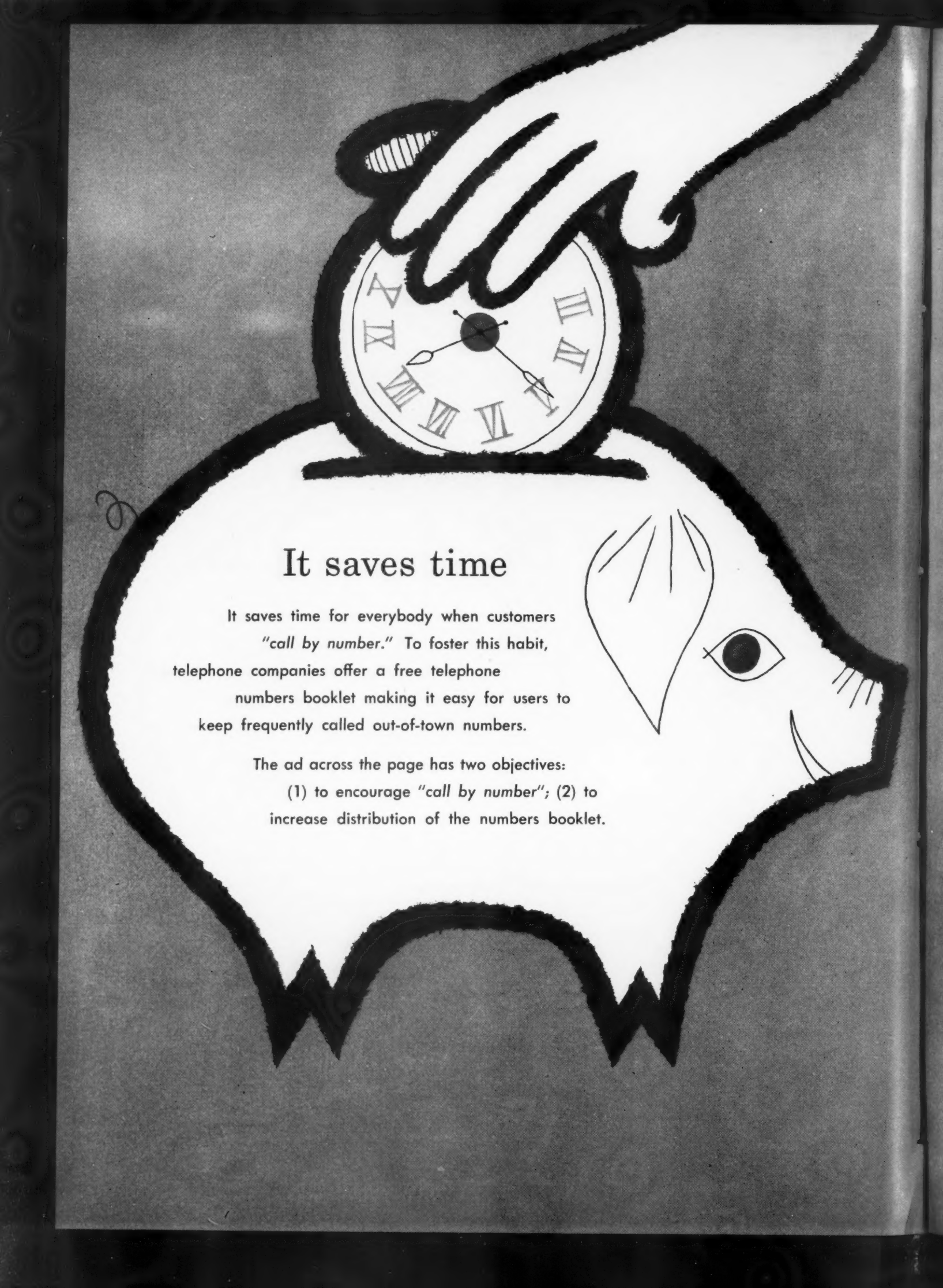


Available in 7 different types. There's just the wire for your particular requirements.

THE WORLD IS SPINNING—100! PHONE 2-7234-5

Cable Spinning Equipment Co.

3100 TOPEKA AVE. TOPEKA, KANSAS



It saves time

It saves time for everybody when customers *"call by number."* To foster this habit, telephone companies offer a free telephone numbers booklet making it easy for users to keep frequently called out-of-town numbers.

The ad across the page has two objectives: (1) to encourage *"call by number"*; (2) to increase distribution of the numbers booklet.

"Hello, Mother! It's Me!"

"Thought I'd call you up and find out if you arrived OK.

"No, it didn't take long. Seemed like I'd just given the operator the number when I heard your voice.

"Good thing I remembered to jot down Aunt Sue's number when you were there the last time."

YOU'LL FIND THIS IS A GOOD IDEA FOR YOU, TOO...

Call By Number

You save time on out-of-town calls when you give the Long Distance operator the number you want.

So here's a helpful hint. Write down the out-of-town numbers you already know. If there's a new number you don't have—or an old one you've forgotten—be sure to add it to the list when the operator gives it to you.

The Bell Telephone Company in your community will gladly give you a free Telephone Numbers Booklet.

BELL TELEPHONE SYSTEM... LOCAL *to serve the community.* NATIONWIDE *to serve the Nation.*

dition $1,735,732 was invested in plant under construction.

The company in 1952 sold $250,050 of common stock and $2,500,000 of bonds. Mr. Woods said that needs for new capital to provide for more construction forecast a probable requirement for additional financing.

Seven exchanges, serving 1,928 telephones were converted to dial operation, and at year end 83 of the company's 124 exchanges and 72% of its telephones were dial operated. Exchanges converted to dial in 1952 were Brainard, Ceresco, Cordova, Dorchester, Valparaiso, Wilber and Yutan. Manual switchboard additions were made at Beatrice, Fairbury, Geneva and Nebraska City.

At the end of the year the company had 1,432 employees, 576 men and 856 women.

Eight exchanges were connected with the national network of operator dialing of long distance calls. Hastings, Tecumseh, Plattsmouth and Seward have two way service with operators dialing calls direct to some 15 million telephones in distant cities and calls being received at telephones in those towns direct from operators in other cities. Outgoing service only was inaugurated at Nebraska City, Wahoo, David City and York.

During the year the company added 29 miles of open wire toll circuit and 1,130 miles of toll circuit by carrier.

Lincoln is not yet a part of the national toll dialing system but will become an important toll center in that system later this year, Mr. Woods said, when equipment in the new telephone building at 1440 M Street is placed in service. This equipment will serve not only Lincoln but also other exchanges in southeastern Nebraska in the transmission and receiving of long distance calls.

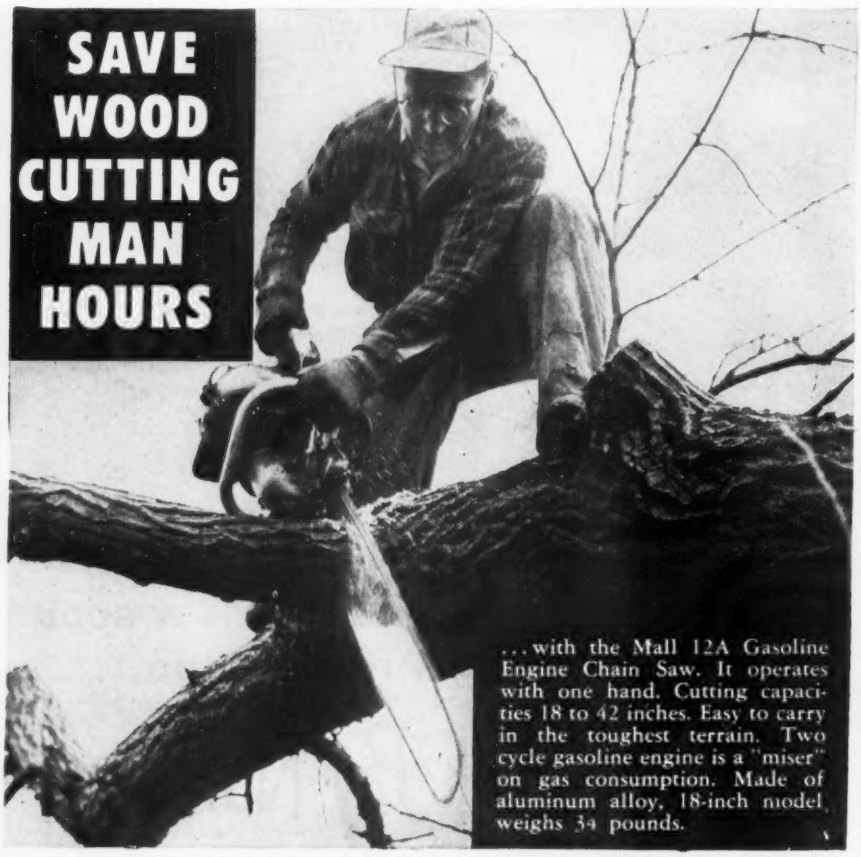
The president informed the stockholders that the company proposes to spend $4,561,237 in 1953 for further growth and improvement of facilities. This will include funds necessary to complete work at the new Lincoln buildings at 15th and M and 48th and South Streets. It also provides $630,000 for anticipated telephone installations at the reactivated Lincoln Air Base. Also included is $107,000 to cover the probable need for providing television channels from Omaha to Lincoln.

The following directors of the company were elected: Thomas C. Woods, Merle M. Hale, H. W. Potter, Frank H. Woods Jr., G. E. Codington, Mark W. Woods, Charles T. Stuart, William I. Aitken, George J. Woods, Philip M. Aitken, John H. Agee, W. W. Putney, L. E. Hurtz and Henry C. Woods.

The annual directors meeting followed the stockholders meeting.

Corporate officers re-elected were Thomas C. Woods, president; Merle M. Hale, vice president and H. W. Potter, secretary and treasurer. Operating officials re-appointed were K. L. Lawson, general commercial superintendent; John A. McKinzie, general plant superintendent; L. P. Young, general traffic superintendent; I. J. Devoe, general auditor and C. C. Donley, chief engineer.

THE NUMBER of square people, not the number of square miles, makes a country great.



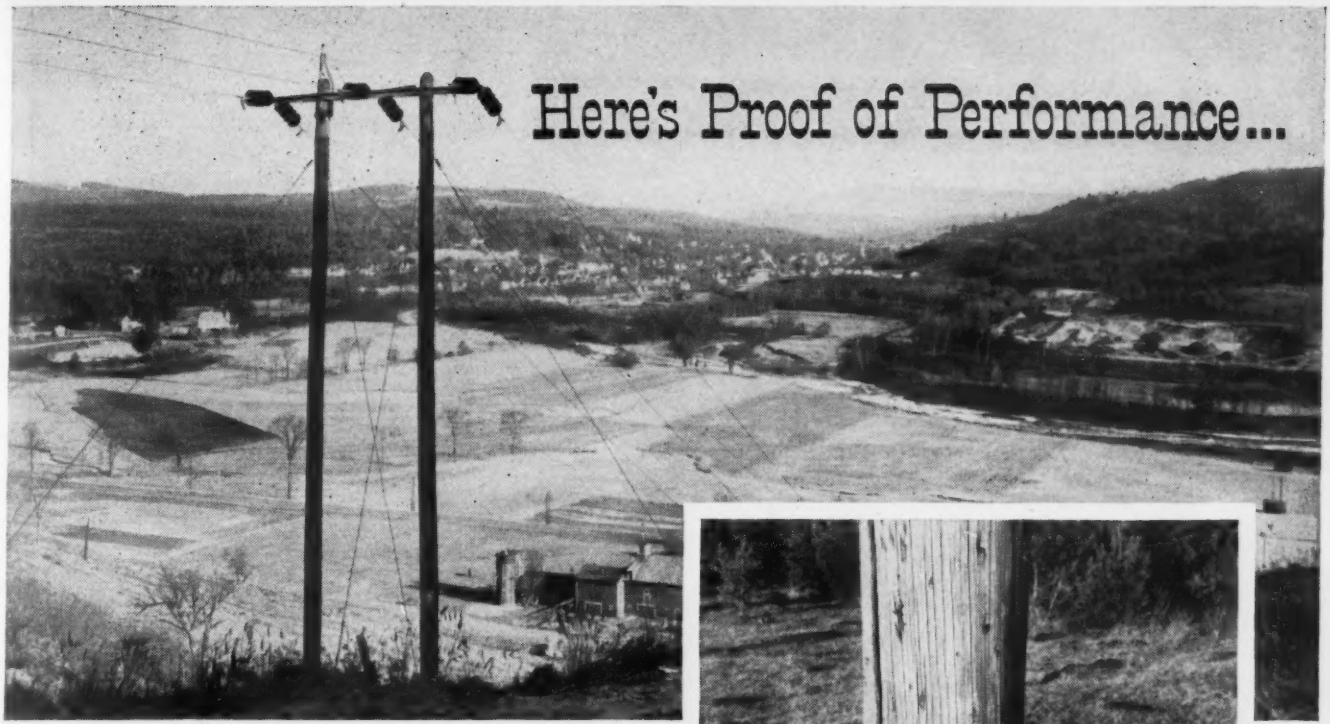
...with the Mall 12A Gasoline Engine Chain Saw. It operates with one hand. Cutting capacities 18 to 42 inches. Easy to carry in the toughest terrain. Two cycle gasoline engine is a "miser" on gas consumption. Made of aluminum alloy, 18-inch model weighs 34 pounds.

Immediate Shipment from Nearest Warehouse Points

- Syntron Hammers and Drills
- Mall Chain Saws
- Klein Tools
- Just-Rite flashlights
- Eveready Batteries
- Columbia Gray Label Dry Cells
- Miller Hydraulic Platform Trucks
- Cable Splicer's Tones
- Butane type Splicer's furnaces
- Complete Cable Splicing kits
- Poles and Crossarms
- Copperweld and galvanized steel strand
- J-M Transite Conduit
- Pole Line Hardware
- ALL tools for outside construction
- Alphaduct Dated Insulated Wire
- NEW Aluminum-coated steel telephone wire
- Complete Line of Cable Spinning Equipment, accessories, tools and materials

Write for Literature . . . Phone Our Office

TELEPHONE & POWER SUPPLY CO.
TOPEKA, KANSAS PHONE 4-2621



TWO OF THE 370 CREOSOTED POLES in the 14-mile power line of New England Power Company along the Connecticut River.

Not a single failure *in 25 years*- that's how Creosote Oil has protected this 370-pole line

CLOSEUP of one of these poles at the ground line, the spot where decay is most likely to occur in this area.

● The 370 poles in this power transmission line of New England Power Company have an amazing record. In the 25 years since they were put in service between 15-Mile Falls and Littleton, N. H. not a single pole has been replaced due to decay or rot.

The credit for this performance goes to Creosote Oil. Before installation the southern pine poles underwent the "Rueping" or "empty-cell" treatment with eight pound retention.

Frank Buxton, Chief Pole Inspector for the Company, inspects these poles regularly every three years. Inspections consist of visual examinations, thorough soundings and test borings where indicated.

On the basis of the last inspection in 1952, Mr. Buxton says the poles are in excellent condition and give prospects of indefinite continued service. As a conservative estimate, he feels the total life will be 30 to 35 years.

When you use a wood preservative, let service records like this be your guide. They are the main reason why Creosote Oil is the first choice of the wood preserving industry.

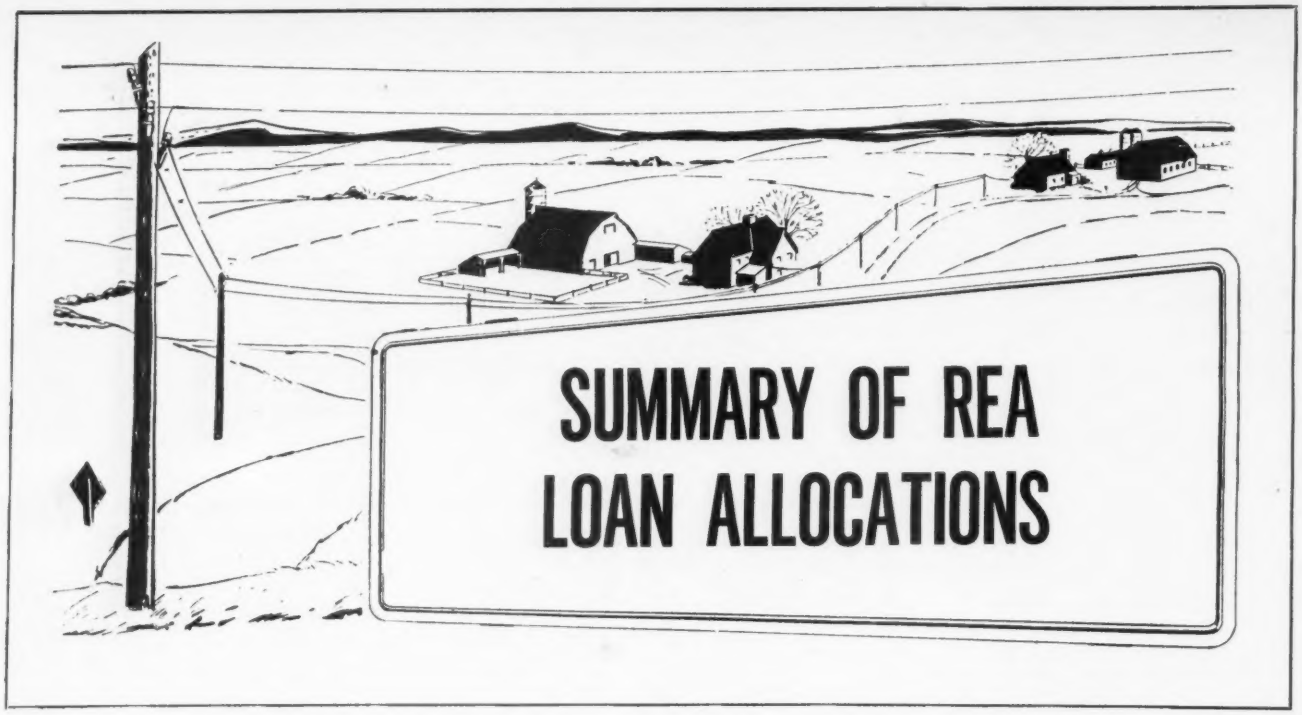
And for finest performance, be sure the wood you use is treated with U·S·S Creosote Oil. It is the product of continuous processing in the world's largest tar distillation plant. For complete information, contact our nearest Coal Chemical sales office or write directly to United States Steel Corporation, 525 William Penn Place, Pittsburgh 30, Pa.

U·S·S CREOSOTE OIL

USS TRADE MARK

3-459

UNITED STATES STEEL



SUMMARY OF REA LOAN ALLOCATIONS

A monthly report of Rural Telephone Loan Allocations Approved by the Rural Electrification Administration.

FLORIDA: *Santa Fe Telephone Co.*, Melrose, Fla., $164,000, third loan to this borrower. Approved Feb. 4.

This loan will be used to cover increased construction costs in connection with the $474,000 original loan approved in Jan. 1951. Construction under the first loan to the Santa Fe Company is proceeding rapidly.

These two loans, together with the $270,000 loan approved in September 1952 for construction of additional facilities, will enable the borrower to furnish modern telephone service to 1,880 subscribers in Alachua, Bradford, Clay, Putnam and Marion Counties. The complete system will consist of 343 miles of line.

• • •

KANSAS: On February 5, at the request of the borrower, REA rescinded a loan allocation of $34,500 approved on Sept. 5, 1951, to the *Denton Telephone Co.*, Denton, Kans.

• • •

KANSAS: United Telephone Assoc., Dodge City, Kans., $852,000, second loan to this organization. Approved Jan. 29.

The borrower plans to acquire from the Western Light & Telephone Co., the Cimarron, Copeland, Montezuma and Ingalls systems, now serving 860 subscribers and 212 on switcher lines.

The REA loan funds will finance the construction of 517 miles of new line, convert the Copeland, Montezuma and Ingalls offices to dial operation, rehabilitate the common battery office at Cimarron, and install a new dial office at Pierceville.

In addition, this loan will cover increased construction costs since the first loan of $394,000 was approved in July 1952.

A total of 1,392 subscribers, including 320 now without telephones, will receive modern telephone service over 863 miles of line upon completion of this section of the system.

When the rehabilitation and new construction possible under both REA loans are completed, the system will consist of 1,163 miles of line serving a total of 2,200 subscribers.

• • •

MISSISSIPPI: *Home Telephone Co.*, Olive Branch, Miss., $176,000, second loan to this organization. Approved Feb. 4.

This supplemental loan will be used to finance the construction of 23 miles of line not provided for in the first loan of $244,000 approved in June 1951, and to replace the common battery facilities in the Olive Branch central office with dial. The original loan to this borrower had contemplated dial service through the Byhalia central office only. Service without toll charge is planned between the two exchange areas of the system. In addition, the loan funds will cover increased construction costs since the first loan was approved.

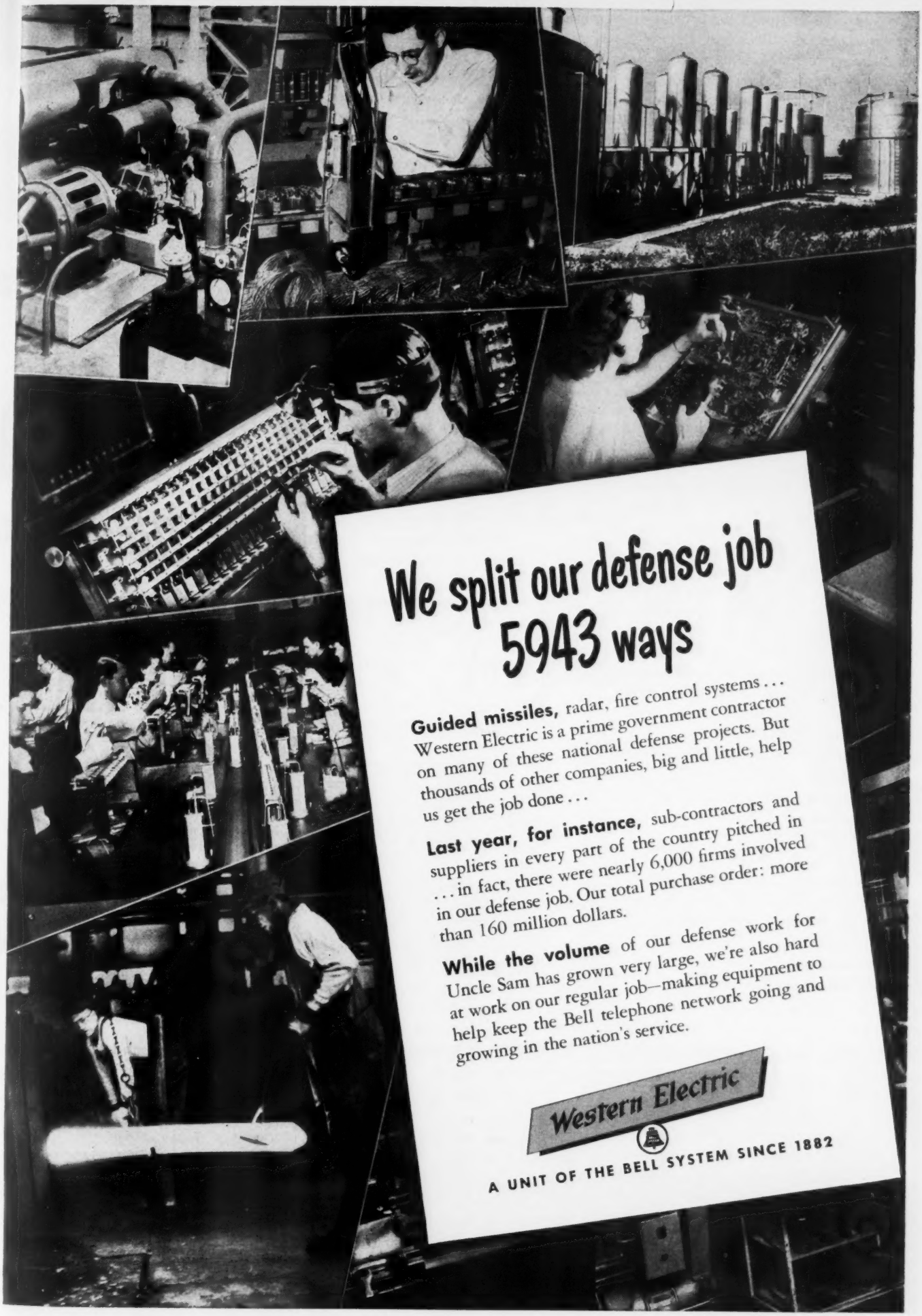
As a result of both the REA loans, this borrower will be able to furnish modern dial service to 953 rural subscribers in Marshall and DeSoto Counties in Mississippi, and Shelby County, Tenn. The system will consist of 178 miles of line.

• • •

NORTH CAROLINA: On Feb. 11, REA approved a loan contract with the *Cherokee Telephone Membership Corp.*, Banner Elk, N. C., in the amount of $150,000. This organization, formerly known as the *Cherokee Telephone Cooperative*, Mountain City, Tenn., has recently been incorporated in North Carolina.

These loan funds will be used to acquire the facilities of the *Banner Elk Telephone Co.*, furnishing magneto service to 98 subscribers, convert the system to dial operation, install a new dial office at Shady Valley, Tenn., and construct 53 miles of new line. The modernization and expansion will enable the borrower to provide modern telephone service to the existing subscribers and extend it to 265 rural families now without telephones in Avery and Wautega Counties in North Carolina, and Johnson County in Tennessee. The completed system will consist of 63 miles of line.

The original allocation of $327,-



We split our defense job 5943 ways

Guided missiles, radar, fire control systems . . . Western Electric is a prime government contractor on many of these national defense projects. But thousands of other companies, big and little, help us get the job done . . .

Last year, for instance, sub-contractors and suppliers in every part of the country pitched in . . . in fact, there were nearly 6,000 firms involved in our defense job. Our total purchase order: more than 160 million dollars.

While the volume of our defense work for Uncle Sam has grown very large, we're also hard at work on our regular job—making equipment to help keep the Bell telephone network going and growing in the nation's service.

Western Electric

A UNIT OF THE BELL SYSTEM SINCE 1882

000, approved in June 1952 provided for three central offices and a somewhat larger operating area. Since that time, the borrower has found it impossible to carry out the original plan. Therefore, the remaining $177,000 of the original allocation is being rescinded.

• • •

NORTH DAKOTA: — REA on Feb. 10 approved a loan of $1,133,000 to improve and expand rural telephone service in four counties in North Dakota. The loan was to the *Dunn Telephone Mutual Aid Corp., Kildeer, N. Dak.*, to improve and extend rural telephone service in Dunn, McKenzie, Billings and Stark counties. The new cooperative plans to acquire the *Stacker Telephone Co.* properties and eight farmer-owned lines, now furnishing service to 279 subscribers over 234 miles of line.

The REA loan funds will be used to build 891 miles of new line, rehabilitate the acquired line, replace the central office equipment at Halliday and Dunn Center with new dial facilities, and install new dial central offices at David, Dodge, Grassy Butte and Manning. The modernization and new construction will provide modern telephone service to the existing subscribers and extend it to 1,163 rural families and establishments now without telephones.

The completed system will consist of 1,069 miles of line. It will be designed to meet the needs of all potential subscribers in the area who may desire service.

• • •

TENNESSEE: — An additional $67,000 allocation will be used by the *Yorkville (Tenn.) Mutual Telephone Co.* to meet rising costs involved in construction covered by the January, 1951, first loan of $124,000.

• • •

TENNESSEE: *Millington Telephone Co., Millington, Tenn.*, $411,000, second loan to this borrower. Approved Jan. 29.

These loan funds will be used to increase the basic plant capacity, beyond earlier plans to keep pace with the rapidly expanding growth in population in this area. Also it will cover increased construction costs involved since the first loan of $705,000 was approved in April 1952.

About 3,200 subscribers in Shelby County will receive modern telephone service as a result of both the REA loans. The completed system will consist of 78 miles of line, and will be designed to meet the needs of all potential subscribers in the operating area which desire telephones.

• • •

TEXAS: *Santa Rosa Telephone Cooperative*, Vernon, Texas, $68,000, second loan to this borrower. Approved Feb. 5.

These loan funds will be used to cover increased construction costs since the original loan of $572,000 was approved in July, 1952.

Over 1,000 subscribers in Wilbarger, Foard, Hardman, Clay and Wichita counties will receive modern telephone service as a result of the rehabilitation and new construction possible under both REA loans. The completed system will consist of 615 miles of line.

• • •

WASHINGTON: — *North Central Washington Rural Telephone Exchange, Republic, Wash.*, $90,000 to improve and extend telephone service in rural portions of Ferry and Okanogan Counties. Approved January 22.

The new group plans to acquire the properties of the *Republic Telephone Co.*, and the *Tonasket Telephone Co.*, Tonasket, now providing magneto and dial service to 950 rural subscribers over 176 miles of line.

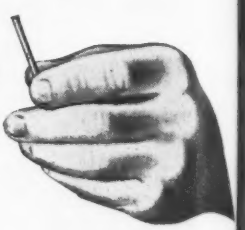
The REA loan will enable the firm to build 349 miles of new line and provide facilities to bring modern telephone service to 696 rural homes and establishments now without telephones and improved service to the existing subscribers. The Tonasket dial facilities will be rehabilitated and installed in the Republic central office, and new dial equipment installed at Tonasket, Curlew, Wauconda, Molson and Loomis. There will be service without toll charge between the Tonasket and Loomis exchange areas.

• • •

WASHINGTON: — *The Cohasset Beach Telephone Co., Aberdeen Wash.*, $64,000, the second loan to this borrower. Approved January 22.

This loan will finance the construction of a new central office building to house additional dial facilities in Westport, and four miles of line, not

(Please turn to page 73)

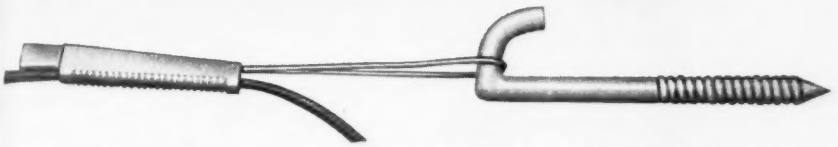
Construction M
With the Double
and America's
this Nicopress
sleeve

plus
this Nicopress

17-2
tool
make better pair splices
faster than you've ever
made them before!
Pair splices, made the Nicopress wa
can't pull out—and they're made
half the usual time!
STROMBERG
Telephone
CARLSON
TELEPHONES, SWITCHBOARDS + SOUND

Materials and Supplies . . .

Guarantee of Stromberg-Carlson Leading Manufacturers . . .

reliable *drop wire clamps*



Manufactured by **RELIABLE ELECTRIC COMPANY**

TYPE "P"—for No. 17 parallel reinforced. Holds drop wires at moderate tensions, but concentrates pressure on small area under heavy loads.

TYPE "PS"—for No. 17 and 18. Particularly for smaller, weaker wires. Even under breaking loads the "PS" supports drop without damage.

Reliable Drop Wire Clamps are unique in that they:

1. Prolong life of drop wires by permitting free swinging at the support, placing all wear on the hardware.
2. Permit stringing and sagging of service drops before cutting wire.
3. Automatically tighten under load, assuring a firm grip without damaging insulation.
4. Eliminate sharp bends in wire.

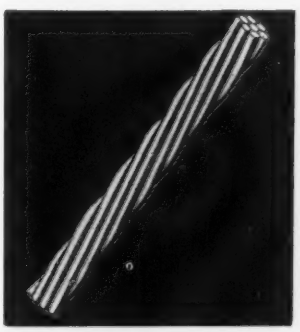
"Reliable identifies the quality"

crapo

guy and messenger galvanized strand

The superior tensile properties inherent in steel are used to full advantage in *Crapo* Galvanized Strand. The tightly adherent zinc coating applied by the *Crapo* Galvanizing Process provides lasting protection against corrosion, and prolongs the life of the strand. Controlled ductility makes *Crapo* Strand easy to work and to serve. Low first cost and low yearly cost result in important economies for operating companies.

The all-round dependability of *Crapo* Galvanized Steel Strand is being demonstrated constantly by its outstanding performance in service. There is a size and grade for all practical needs.



LONG LIFE—LOW COST

for longer battery life and service . . .

the new RAYTHEON "high-rate" RectiChargeR!*

This constant potential battery charger like all Raytheon RectiChargeRs, is completely automatic. It has special dry disc rectifiers plus an exclusive Raytheon Magnetic Amplifier Control Circuit which maintains precise DC voltage output at any load in the presence of wide changes in AC input voltage . . . increases battery life by eliminating over and under charging.

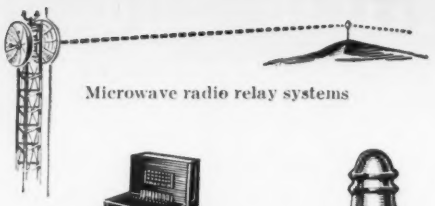
It handles inexpensively all normal power requirements and allows the battery to "stand by" fully charged to meet all emergency demands. You get noiseless current at constant voltage by simple connections to a power outlet and your battery. It is ideally suited for use with systems requiring power for 22/24 cells of battery.

*Reg. U. S. Pat. Off.

Distributed by STROMBERG-CARLSON

ROCHESTER • CHICAGO • ATLANTA • KANSAS CITY • SAN FRANCISCO • TORONTO

EQUIPMENT AND ELECTRONIC CARILLONS • INDUSTRIAL, INTERCOMMUNICATION SYSTEMS • TELEVISION, RADIOS AND RADIO-PHONOGRAPHS

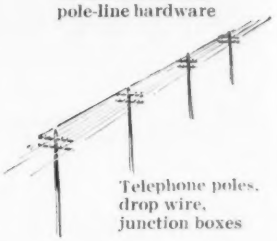


Microwave radio relay systems

Switchboards, test-boards

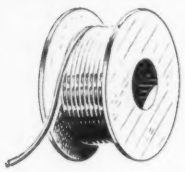
Insulators and all pole-line hardware

Telephone batteries and standby power supplies

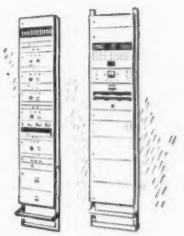


Telephone poles, drop wire, junction boxes

Teleprinters



Wire and cable for every purpose



Carrier wire transmission systems

EVERYTHING... behind your telephone

Modern automatic dial telephone exchanges—for communities of any size from the largest to the smallest—are provided complete to the last detail by ISE. But ISE service goes far beyond that—covering every conceivable need of a modern communications system. Included are such specialized equipment as microwave point-to-point links, carrier and other multiplex systems and teleprinter networks—as well as the telephone wire itself, the poles on which it is strung and all the tools, accessories and materials required. Look to ISE for everything—everything behind your telephone.

ISE
An IT&T Associate

International Standard Electric Corporation

67 Broad Street, New York 4, N. Y., U. S. A.

Equipment and supplies for automatic and manual telephone and telegraph systems . . . radio communication . . . television and radio broadcasting and receiving . . . radio aids to navigation . . . airports . . . light and power . . . signalling systems.

FACTORIES IN SOUTH AMERICA: Cía Standard Eléc. Argentina, S.A. Ind. y Com., Buenos Aires, Argentina
Standard Eléctrica, S.A., Río de Janeiro y São Paulo, Brasil • Cía Standard Electric, S.A.C., Santiago, Chile

(Continued from page 70)

provided for in the first loan. Also it will cover increased construction costs since the original loan of $107,000 was approved in January 1952.

Over 600 subscribers in Grays Harbor and Pacific Counties will receive modern telephone service as a result of the expansion and construction possible under both REA loans. The completed system will consist of 53 miles of line, and will be designed to serve all establishments in the operating area which desire telephones.

• • •

FOUNTAIN CITY TELEPHONE CO., Fountain City, Wis., $196,000 to finance improvement and expansion of rural telephone service in Buffalo County. This loan will be used to convert the existing system, serving 384 subscribers, from common-battery and handcrank service to dial operation, and provide facilities to serve 175 new subscribers. The 98 miles of existing line will be completely rebuilt and 15 miles of new line added.

Completed, this system will be operating 113 miles of line furnishing modern telephone service to a total of 559 subscribers. It will be designed to meet the needs of all potential subscribers in the operating area who may wish service.

• • •

WEST VIRGINIA: *Home Telephone Co., New Haven, W. Va.*, $80,000, the third loan to this borrower. Approved Jan. 27.

This loan will be used to meet additional costs arising from changes in the borrower's plans, provide adequate toll trunking facilities, and cover increased construction costs involved since the new system was originally planned.

The Home Telephone Co. operates in the rural areas of Mason County. The new dial central offices at New Haven and Letart went into service around the middle of December.

When the improvements and expansion made possible under the REA loans are completed, the system will furnish modern telephone service to about 800 subscribers.

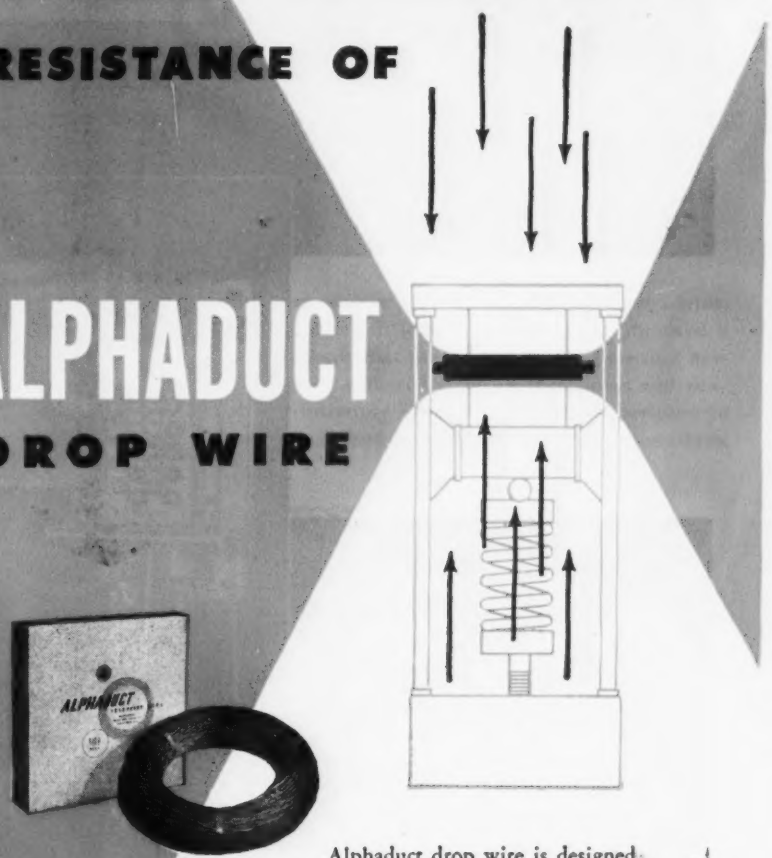
EVERYBODY knows how to express a complaint, but few can utter a graceful compliment. It's a matter of practice.

1500 pounds

MINIMUM COMPRESSION RESISTANCE OF

ALPHADUCT

DROP WIRE



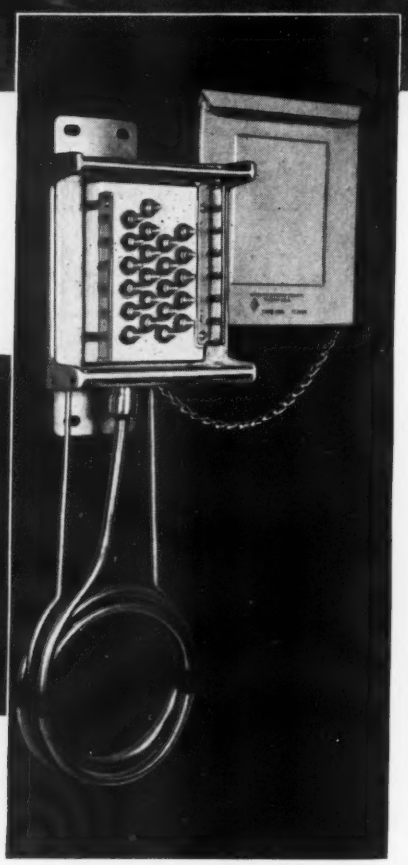
Alphaduct drop wire is designed and built to be the longest lasting drop wire you've ever installed. It's tested . . . completely, thoroughly and often to make sure that every single coil is up to Alphaduct's rigid standards.

Here's how the insulation is tested to make sure it won't crush.

Short lengths of Alphaduct are placed between the steel plates of a compression testing machine. These plates are then forced together at uniform speed until the insulation crushes. Alphaduct parallel drop wire has to withstand a minimum load of 1500 pounds before it breaks. Each conductor of Alphaduct twisted pair will withstand a 1000 pound pressure.

You don't have to worry about a little rough handling breaking down this kind of tested insulation. Try Alphaduct drop wire. It's dated, so you can see for yourself the extra wear it provides.

ALPHADUCT WIRE AND CABLE COMPANY • MILLTOWN, NEW JERSEY
NATIONAL DISTRIBUTORS • LEICH SALES CORPORATION, CHICAGO, ILLINOIS
REGIONAL DISTRIBUTORS • PANKEY SUPPLY CO., CHARLOTTESVILLE, VA.
THE LINDSAY TELEPHONE SUPPLY CO., CLEVELAND, OHIO



Automatic Electric
TYPE 60A
Unprotected
Cable Terminal
Now-with NEW STUB GUARD

New guard prevents costly damage!—takes the strain of carrying, keeps stub safe. Detachable bracket makes Type 60A simple to install. Moistureproof cable joint aids in preventing cable trouble. Heavy zinc cover and rubber knockouts help keep this rugged terminal dust- and insect-free. For time-savings, trouble-savings, specify Type 60A!

SA-51 ... 11-pair
SA-53 ... 16-pair } all furnished with 6' length of 24 ga. cable stub.
SA-55 ... 26-pair

Product of the Telephone Specialty Department of

AUTOMATIC ELECTRIC

Distributors in U. S. and Possessions: Automatic Electric Sales Corporation
Export Distributors: International Automatic Electric Corporation
1033 West Van Buren Street, Chicago 7, U. S. A.

Central Office Maintenance

(Continued from page 46)

the relays, soak current is a heavy current intended to saturate the magnetic circuit of the relay, usually to detect a sticking condition of the armature as the result of insufficient residual or other cause. Leak current is a very low value of current simulating leakage current (possibly from adjacent circuits or due to foreign potentials). Operate, non-operate, hold, and release, obviously refer to the armature action of the relay.

Excessive spring tension is indicated by the failure of the relay to function on the "operate" current value and insufficient tension, by failure to release on the "release" current value or on opening the circuit to the relay winding. By bending the armature lever or armature springs (depending on the type of the relay,) in or out as required each time, a point is quickly reached where the relay operates and releases in the desired manner. The procedure is illustrated in Figure 243.

—To Be Continued.

Design For A Rate Schedule

(Continued from page 39)

companies try to meet such special needs as far as is practicable without burdening the great majority of customers by having them pay for costs incurred for the benefit of a few.

Grandma Brown is quite deaf, and her telephone is equipped with an amplifying device. The flat monthly charge for this special set is kept very low, not only for the benefit of those with hearing defects but also in the interests of all others who may wish to talk with them.

On the other hand, the X. Y. Co., the large manufacturing concern for which Jim Brown works, has a rather elaborate intercommunicating network specially designed for its plant. The charges for this recognize the

The National Telephone Magazine

SPRING TELEPHONE ENGINEER and MANAGEMENT

APRIL, 1953 VOL 57, NUMBER 5

The SPRING CONSTRUCTION

ISSUE OF

TELEPHONE ENGINEER and MANAGEMENT

(April 15)

will be doubly important to telephone men this year

●

In addition to presenting many new labor and money saving tips on various types of telephone construction work . . . the authors have taken into consideration today's unusual conditions in preparing the special articles assigned to them.

●

Some of the features prepared for exclusive use in the SPRING CONSTRUCTION Issue are shown on the partial index of this coming issue in the next column.

Every telephone man should have his own individual copy of this big issue to study and file away for future reference.

Subscription Order Form

Telephone Engineer & Management
7720 Sheridan Road, Chicago 26, Ill.

..... 1953

Gentlemen: Here is $3 covering 12 months subscription to TELEPHONE ENGINEER & MANAGEMENT. Start it with the big Spring Construction issue.

Name .....

Company .....

City ..... State .....

***Partial Editorial Index of the* SPRING CONSTRUCTION ISSUE *of Telephone Engineer & Management, April* 15**

(1) "NEW CONSTRUCTION METHODS",
by John S. Reed.

Teamwork — the researcher who originates, the engineer who adapts, and the management that places an idea in service — has produced a constant stream of new methods that are being used to construct new telephone plant. Mr. Reed has collected many of these ideas and produced an article that will introduce systems and methods designed to reduce costs, improve efficiency and bring better service to subscribers.

(2) "MODERN CIRCUIT TESTING METHODS",
by Myrle Shafer.

It is a well known fact that constant vigilance at the test desk plays an important part in maintaining the dependability of telephone service. Mr. Shafer is a long-time believer in this fact and in his article he discusses — (a) testing with voltmeter and battery from the central office, (b) testing with volt-ohmmeter on open wire lines, (c) testing with handset on cable, drop, substation protector and instrument, and (d) testing with magneto sets.

(3) "FINDING TROUBLES BEFORE THEY HAPPEN",
by Robert Knell.

Preventive maintenance guards the dependability of the service while holding the expense of the operation in economic balance. In this article Mr. Knell explains preventative maintenance measures that any telephone company may adopt to correct potential trouble conditions before they can affect the service of its customers.

(4) "HANDLING STUBBORN RIGHT-OF-WAY PROBLEMS",
by John B. Henkels, Jr.

In this excellent article, Mr. Henkels presents a guide for the satisfactory handling of rights-of-way problems, showing by text and illustration how the stubborn problem can be whipped.

(5) PLUS THESE FEATURES —

* Washington Bureau Reports, by Roland Davies & Fred Henck.
* Questions & Answers, by Jay G. Mitchell.
* The Management Forum, by John G. Reynolds.
* How-To-Do-It Tips, by Richard Allen
* New Products' Showcase.
* Free Business Aids, * Industry News Briefs, * Buyers Guide.

ACORN INSULATED WIRE

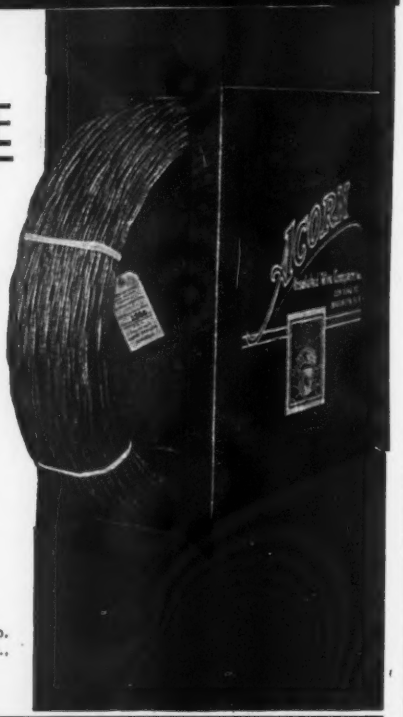
Quality WIRE for Every Telephone NEED

★ ★

DROP WIRE
BRIDLE
SWITCHBOARD
TREE
GROUND
BURIED WIRE

INTERIOR
POTHEAD
CABLE TERMINAL
INSTRUMENT
FIXTURE
PLASTIC INSULATED

ACORN INSULATED WIRE CO., INC.
36 Freeman St., Pawtucket, Rhode Island
LEICH SALES CORP., 427 Randolph St., Chicago.
LINDSAY TELEPHONE SUPPLY CO., 7016 Euclid Ave., Cleveland, Ohio.



Drop Wire—Bridle—Interior—Tree—Ground—Switchboard—Pothead—Cable Terminal—Instrument—Fixture—Buried Wire

Servicing the INDEPENDENT Telephone Industry

A Complete Line of Telephone Supplies

•

Lindsay Telephone Supply Co.

Telephone ENdicott 1-0110 7016 Euclid Avenue
CLEVELAND, OHIO

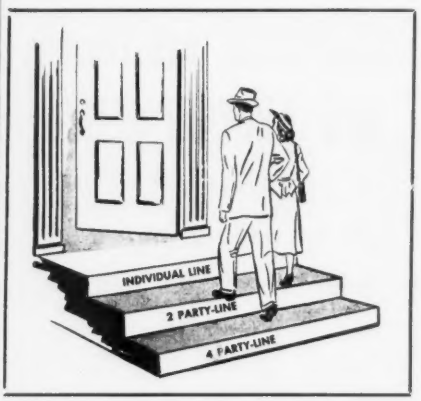
PERSONALIZED SERVICE

(Continued from page 74)

various service features, and their levels are commensurate with the high value of these special arrangements to the X. Y. Co., since they add little to the service of anyone else.

High-Quality Service

GOOD TELEPHONE service depends primarily, of course, on the operators, maintenance men, service representatives, and others who day by day work together to furnish it. Yet a well designed rate schedule can also help ensure a high quality of service by offering only those classes of service which have proved generally satisfactory and by influencing the amounts and types of service which customers use. For example, the differentials between individual-line and party-line rates are fixed at levels which, in normal times when facilities are available, encourage customers to proceed naturally from party to individual lines as their needs increase.



Rate schedules are designed to make it easy for customers to step up from party lines to individual lines.

When the Browns were first married, they were on a party line. As the family grew and their telephone use increased, they found it cost only a little more to change to individual-line service. If the rate difference had been too great, the Brown family might have stayed on the party line; and as their use increased, a generally unsatisfactory service situation might have developed.

Unfortunately, in the present period of shortages, it is not always possible to give all customers the type of service they need and desire. However, rate schedules are designed so that rate differentials will present no obstacle to customers taking better

(Please turn to page 78)

"folks" forget so easily

Advertising Forms Close April 1

SAVE Catalog Expense
Direct Mail Expense
Get full 100% Coverage

The Buying power of your advertising dollar is at its peak in this 18th edition of the TELEPHONE COMPOSITE CATALOG & BUYERS' DIRECTORY.

There is no other medium to give you such close and timely contact with your customers and prospects at so low a cost. A full page, for instance, gives you a full year's sales representation for less than 2c per copy.

Where did I buy this? . . . Where did I buy that? . . . Who makes this? . . . Who makes that? . . . I know the trade name but who is the manufacturer? The factory is a long way off — maybe they have a nearer shipping point? . . . Someone told me about a new cable reel carrier — who makes reel carriers?

The answers to these and hundreds of other every day queries about items used in a telephone plant can be found in Telephone Engineer and Management's annual COMPOSITE CATALOG & BUYERS' DIRECTORY.

This Catalog-Buying Directory Keeps Your Sales Message Working All Year at ONE Low Cost

With it being the most complete, authentic buying directory published in one big volume it remains on the desk or at the finger tips of the managers, engineers, superintendents, construction and maintenance men or whoever might be doing the buying at all times.

Anyone opening same is in a mood to buy. Your advertisement in the composite catalog section or under product listings in the classified buying section can and will attract the buyer's attention . . . and thus allow you to present the merits of your products at the most logical time, right when he is ready to order.

Tell your complete product story in the Telephone Composite Catalog & Buyers' Directory which has been a successful selling force for 17 years. Use adequate space. Some manufacturers require multiple pages, some use spreads, others find a page, half pages and even adlets sufficient in describing their products. 189 manufacturers used space in last year's Catalog-Directory.

For circulation breakdown — advertising rates and complimentary copy of current issue, write

TELEPHONE ENGINEER

Publishing Corporation

7720 SHERIDAN ROAD, CHICAGO 26, ILLINOIS

DISTRIBUTED BY KELLOGG SWITCHBOARD AND SUPPLY COMPANY
DROP • ENDURPRENE • BRIDLE
MANUFACTURED BY GENERAL INSULATED WIRE WORKS, INC., PROVIDENCE, R.I.

(Continued from page 76)

grades of service as soon as facilities are available.

Contrast between American toll rate schedules and those in effect abroad furnishes another illustration of the relation of rate treatment to quality of service. Most foreign toll schedules provide for "express" and "lightning" calls at progressively higher premiums over the rates for "ordinary" service. The American toll system, in effect, provides "lightning" service on all calls and no rate premium is charged.

Keeping Costs Down

NEITHER THE telephone company nor its customers want to sacrifice good service in an effort to cut costs. But rates can help avoid unnecessary costs.

For instance, some time ago Jim Brown made a call to Bill Smith in Akron without knowing where Bill was staying. Several operators did a lot of work and used expensive long distance circuits and switchboard facilities before Bill was finally located. The next time, Jim got Bill's telephone number from Bill's secretary and placed the call station-to-station. The call went through much quicker, Jim saved money, and the telephone company saved a lot of operators' work and circuit time. Now Jim clearly sees why the station-to-station rate is made substantially lower than the person-to-person rate, in order to encourage customers to place their calls on a station basis whenever possible.

Sometimes a type of rate treatment reduces unit costs by making more service available at about the same total cost. The extended service between Belleville and adjacent towns is a case in point. The Company saves operating, accounting, and other work because calls to these points can now be dialed by customers and it is no longer necessary to ticket and time the calls, compute and bill charges, and so on. On the other hand, with extended service, customers make a lot more calls, and the company has to provide the circuits and other facilities to carry the additional traffic. These added costs may amount to somewhat more or somewhat less than the savings, but, in either case, customers get much more service (sometimes five or six times as much) and the cost per call is 'way down.

Fair Distribution of Charges

TELEPHONE RATES are applied in accordance with established tarriffs which clearly set forth the classes of service offered, the rates for each class, and the administrative regulations. This ensures fairness through the uniform application of the schedule to all customers.

Fairness also requires that important differences in service be recognized by differences in rates. Party-line customers pay less than do individual-line customers, obviously, because they share the use of their line. Business customers pay more than residence because telephone service is more valuable to them and, as a group, they use it considerably more. Toll charges increase with length of haul and length of conversation.

On the other hand, attempts to recognize too many minor differences would result in rate schedules so complicated that customers would not understand them and the company would find them difficult to administer. Any workable rate schedule requires grouping of customers and a certain amount of averaging out of charges. Equity requires that these groupings be reasonable, based on type, amount, and scope of service, and that customers who receive the same or closely similar services under like conditions pay the same charges.

An illustration of this is the gradation of exchange rates in accordance with number of telephones available. With their new extended-area service, the Browns can reach 40,000 telephones without a toll charge. The telephone company makes the same charge to every other family in the state which has the same class of service as the Browns and, like the Browns, lives in the built-up portion of an exchange with about 40,000 telephones available at local rates. Similarly, in the toll rate schedule within the state, the same rate applies for calls between points the same distance apart. Obviously, these are fair methods of charging.

It may be well to mention here that fair distribution of charges does not require that each individual or each group of customers pay charges based on estimated costs of serving them. The great bulk of the telephone com-

(Please turn to page 80)

"Mother's asleep now, son," Dad told him. "She'll be asleep a long, long time. It's kind of like going away. We'll have to learn to get along without her, Johnnie."

To a statistic named Johnnie

Who's Johnnie? Just one of the 175,000 children under eighteen here in the United States who have lost a mother to cancer.

Statistics are a little too big for a boy this small to understand. Even the hopeful ones about cancer—and there are more every year.

More and more today—cancer can be cured

Patients are being cured who could not have been saved—even five years ago. In 1952, some 70,000 with cancer were saved.

And this number could have been doubled, if treatment in all the cases had been begun in time.

Your contributions to the American Cancer Society helped make such hopeful statistics possible. And they can make the story even brighter tomorrow.

Not for Johnnie, to be sure.

But for all the other children—*they might be yours*—who still have their mothers and fathers. If only *one tenth* of the millions of people like you who have such good intentions would actually take the time to send us their contributions! *And would do it now—instead of turning the page . . .*

AMERICAN CANCER SOCIETY

Gentlemen:

Please send me free literature about cancer. Enclosed is my contribution of $_____ to the cancer crusade.

Name _____

Address _____

City _____ State _____

Simply address the envelope: "Cancer," c/o Postmaster, Name of Your Town

CANCER STRIKES ONE IN FIVE

Strike back—give to the American Cancer Society

'53 P&H PENTA

PENTA POLES

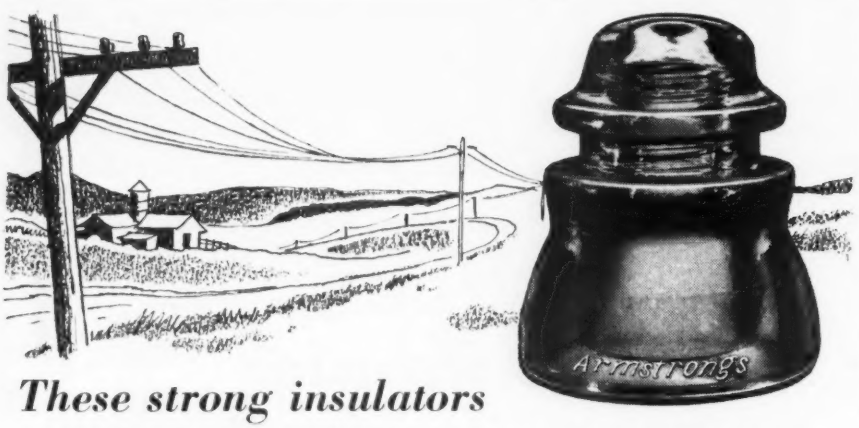
FULL LENGTH TREATED *NORTHERN* WHITE CEDAR

The preservative (a highly chlorinated phenol solution) is more toxic than any others in common use. Penetration and diffusion of the preservative increase with time.

PAGE AND HILL, INC.

MINNEAPOLIS, MINN. • 50 CHURCH ST., NEW YORK, N.Y.

DISTRIBUTED BY AUTOMATIC ELECTRIC SALES CORPORATION • • • • STROMBERG-CARLSON COMPANY



These strong insulators

SAFELY SUPPORT LONG, HEAVY SPANS

Abnormal loads and sudden stress won't damage Armstrong's Glass Insulators. They're molded of tough industrial glass that will stand up under loads that can bend standard metal mounting pins.

They're highly resistant to weathering and surface leakage. And they'll withstand thermal shocks far more severe than any met in service. Accurate thread contours mean they won't rock or wobble on pins.

Find out how Armstrong's Glass Insulators can cut replacement costs. See your supplier or write Armstrong Cork Company, Glass and Closure Div., 295 Fifth Ave., N. Y. 16.

ARMSTRONG'S GLASS INSULATORS

for communications . . . for power

(Continued from page 78)

pany's costs for basic services are incurred in order to make it possible to connect any one telephone with any other, and in making these connections, on demand. Such costs are common to everyone and to try to separate them is like trying to unscramble eggs.

Furthermore, attempts to base rates entirely on estimated costs would more often than not react greatly to the customer's disadvantage. Take Joe's market, where the Browns buy most of their food, usually ordering by telephone. Someone might figure that it doesn't cost much to serve Joe, because the market is right next to the central office and Joe doesn't make many outgoing calls. The Browns live in the newer part of town and their youngsters make lots of calls. So the costs of serving the Browns and many of their neighbors might seem rather high. If rates were based on these estimates of costs, Joe's telephone bill might go down several dollars a month, it is true, but he would hardly notice the difference in his total cost of doing business. At the same time, the telephone rates for the Browns and their neighbors would go 'way up. Some of them might have to give up service or change to a busy four-party line. Rates based on costs would obviously be bad for Joe, too, because he would miss much of the business they used to telephone in. Joe would much rather pay his present rate and keep his telephone busy with incoming orders.

Weighing the Various Objectives

PERHAPS THIS brief discussion of the various objectives of telephone rates leaves you with the impression that sometimes they pull in different directions. Indeed, sometimes they do. The best quality service is usually not the least costly. Rate treatment designed to encourage maximum use as to number and duration of calls and extent of area covered, if carried to too great lengths, might require rate levels which would not permit the maximum number of customers to have service. To cite an extreme — we obviously couldn't offer nation-wide flat-rate service.

There is no magic formula for resolving these cross-purposes. The rate

engineer studies past experience with various service offerings and rate relationships in his own and other territories. On the basis of this experience he weighs the pros and cons and attempts to arrive at the schedule which, in his judgment, will be most satisfactory from all standpoints.

The answer isn't the same at different times or in different areas. Different circumstances and conditions ,and customers' habits and preferences, all have to be taken into account. By way of illustration, when both flat and message rates are offered, in some areas almost no one takes message-rate service while in other areas there is a fair amount of measured service. Similarly, many residence customers, in some areas, seem fairly well satisfied with party-line service while in other areas relatively few consider this service adequate. These and many other differences in customer attitudes are taken into account in designing the different rate schedules.

Another important factor is the relative levels of revenue requirements in different states. Since intrastate service in each state and interstate toll service are subject to different regulatory authorities, each must stand on its own feet financially. Differences in revenue requirements may affect rate structures as well as rate levels. For example, in one state, individual line and two-party flat rates may be low enough to promote a large residence development. In another state, where rate levels are necessarily higher, four-party flat rate or two-party message rate service may be added at lower rates to attract low-income customers. An independent company operating two or three small exchanges must view its rural rates as its major source of revenue, while to a company operating in large cities this would be less significant. These differences must be duly recognized in the rate schedules, in order that each company may meet its revenue requirements in each state.

The major objectives of rate making are always the same: "The most service and the best at the least cost to the public consistent with financial safety." Since conditions may differ widely, rate engineers strive not for uniformity of rate schedules but to develop the best possible solution to the rate problems of each area, so that all may accomplish the basic objectives to the greatest possible extent. —THE END

Minnesota Convention Report

(Continued from page 51)

a rate case without adequate preparation. This, he said, should include a thorough survey of the company's financial needs, so that enough of an increase is asked for so it is not necessary to come back to the commission again. Also, he said, service should be adequately checked up on, and the telephone company's dilemma should be told by all available media to the public.

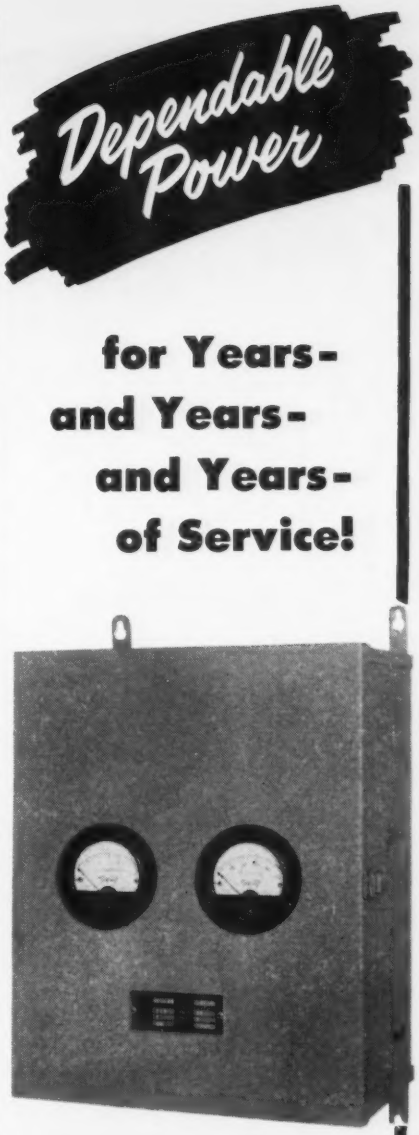
Citing the cases of two companies who had not asked for enough, Mr. Crowley said such companies, being compelled to file an additional application for more income in order to survive, "thus impose an increased cost to the state and to this association, and bring about criticism by those that they serve."

George M. Kloidy, former secretary of the Nebraska Telephone Association, gave the major speech on the morning of the second day, citing the need for telephone companies to acquire public good will. If the public is properly informed, he said, "the low rate microbe which saps vitality and destroys, may be eliminated."

"In the main, the public is demanding the best telephone service it is possible to furnish, and in return are willing to pay fair and reasonable telephone rates."

State Senator Fay George Child, a newspaper editor and member of the Minnesota Legislature, also spoke. Well known for his fight against Communism and Socialism tendencies, Senator Child told the delegates that "the best way to fight radical Socialism is to fight radical socialists, with the same logic applying to Communists." He said that Socialism is not inevitable, but is "being jammed down our throats by planners, spenders, propagandists and some educators."

(Please turn to page 82)



Ericsson

TELEPHONE EQUIPMENT

is acclaimed the world over for highest quality and performance.

•

Telefonaktiebolaget L. M. Ericsson of Stockholm, Sweden, and associated companies are manufacturers of all kinds of telephone and signal equipment of every size and for every purpose.

•

Represented in the U.S. By

ERICSSON TELEPHONE SALES Corporation

100 Park Avenue, New York 17, N.Y.

(Continued from page 81)

The afternoon program was largely devoted to Northwestern Bell Telephone, including a talk by Ben S. Gilmer, vice president and general manager; a demonstration on microwave radio relay systems; and a motion picture on "Communications for Civil Defense."

Mr. Gilmer said that telephone companies "would be unjust to themselves and to their customers if they did not recognize and publicize the fact that taxes are an extraordinarily large factor in the increased cost of providing telephone service." In Bell's case, he said, the total of operating and excise taxes paid by the company averaged out to $2.41 on the average monthly charge per telephone.

Francis X. Welch of Washington, managing editor of *Public Utilities Fortnightly* and Washington editor of *Telephony* Magazine, was final speaker of the day. Discussing the Eisenhower administration, Mr. Welch warned that businessmen "must not ask for too much, too soon" from Washington, warning that "if business falls down on its responsibilities now, businessmen may be run out of the government for years — perhaps forever."

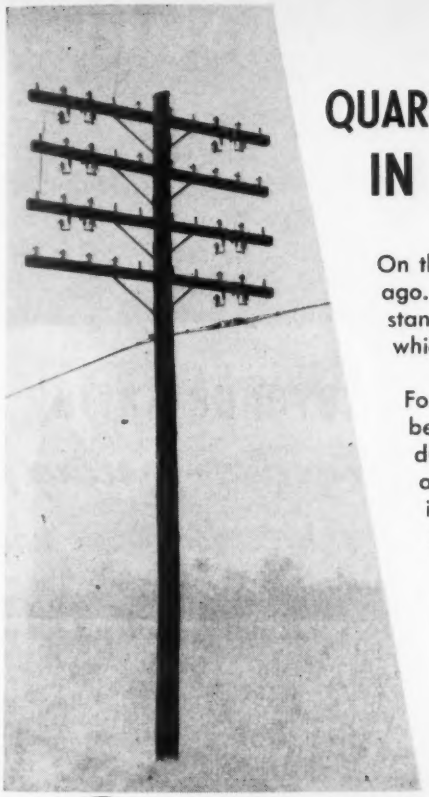
"Businessmen still in business must cooperate generously with businessmen in Washington who are working together to put the federal government back on the track of commonsense operations. Business must be patient, and not ask for 'too much, too soon' in the form of tax reductions or in opposition to long-entrenched government activities which have irritated them."

That evening the final banquet was held, with two members of the Minnesota Railroad and Warehouse Commission and a former member as honored guests. These included Commissioners Clifford Peterson, chairman, and Paul Rasmussen, and former commissioner Leonard Lindquist. The third commissioner, Ewald Lund, has been ill and was not able to attend. The banquet also registered a record attendance, and was followed by a stage show and dance.

Speakers on the final day, before the convention adjourned at noon, included Harvey Knutson, partner of Quail, Macoubrey and Company, public accountants in St. Paul, on the subject "Immediate Essentials of Good Telephony Accounting"; L. W. Youngvorst of Telephone Engineering and Construction Company, St. Paul, on "Right of Way and Clearances"; and Gordon Dodd, manager of the Floodwood, Minn., Telephone

(Please turn to page 84)

A six-foot high replica of a modern dial telephone graced the lobby of the Hotel St. Paul during the 44th annual convention of the Minnesota Telephone Association, and was a center of interest for thousands of hotel visitors that week. Admiring the display is EDWIN BLAKESLEE of Santa Monica, Calif., (right), president of U-S-I-T-A. Explaining the details to him is P.M. FERGUSON, JR., of Mankato Citizens Telephone Co. The Mankato company built the telephone last year for use in Mankato's Centennial parade, and shipped it to St. Paul for the state convention. — *(St. Paul Dispatch Photo.)*

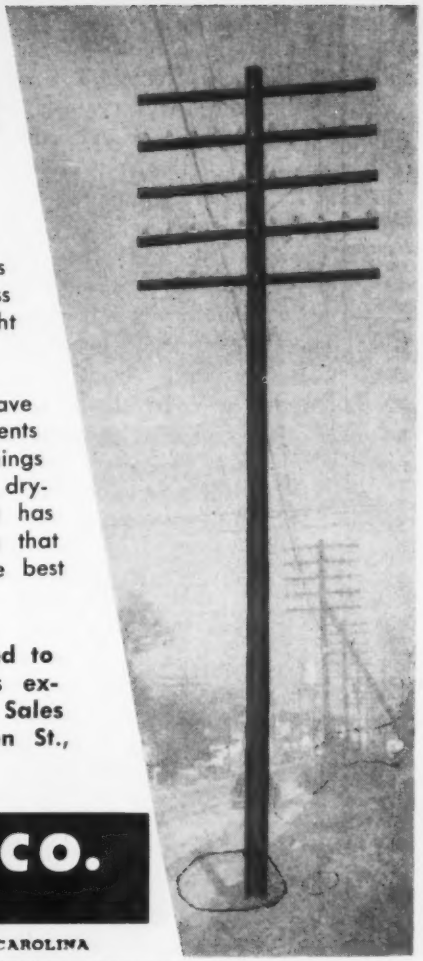


MORE THAN A QUARTER CENTURY PROGRESS IN POLE PRODUCTION

On the left is a Taylor-Colquitt pole set 25 years ago. Still sound and serviceable, it nevertheless stands in sharp contrast with one on the right which was recently installed.

For to good timber and good treatment have been added many improvements and refinements during the years that have passed. In such things as timber selection, machine trimming, vapor drying and precise treatment, Taylor-Colquitt has set constantly higher standards to insure that Taylor-Colquitt poles shall always be the best that can be obtained.

Taylor-Colquitt poles are distributed to independent telephone companies exclusively by Automatic Electric Sales Corporation, 1033 W. Van Buren St., Chicago 7, Illinois



TAYLOR - COLQUITT CO.
SPARTANBURG, SOUTH CAROLINA

PLANTS AT SPARTANBURG, SOUTH CAROLINA AND WILMINGTON, NORTH CAROLINA

YOUR TELEPHONE and HOW IT WORKS

By HERMAN SCHNEIDER,
Supervisor of Science, Elementary Schools of New York City
and NINA SCHNEIDER,
Co-author of other elementary science books
JEANNE BENDICK,
Pictures by
author and book illustrator
96 pages, 5½ x 8, illustrated, $2.00

Telephones play an important role in the lives of all of us. The story of this everyday instrument is a fascinating one as told in this book. Everyone will find worthwhile this clear, well-demonstrated presentation of the function of telephones. The Schneiders begin with a simple, nondial phone and manual switchboard and move step by step to a full explanation of the highly complex boards which handle large city, modern telephoning.

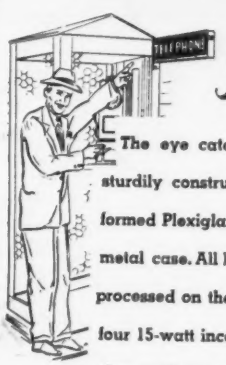
The material includes fundamental information on sound vibrations, how they travel, how they are picked up, how they are transmitted by electrical current. It describes in detail the marvelous dial and the selectors which do the work of operators in large exchanges. These and scores of other facts make this a truly wonderful story for anyone who is curious about how his telephone works.

Order from

Telephone Engineer Pub. Corp.
7720 N. Sheridan Rd., Chicago 26, Ill.

A SIGN OF GOOD SENSE . . . AND DOLLARS TOO!

OUTDOOR-OD-1



Illuminated

The eye catching OD-1 shown above is an outdoor sign sturdily constructed to withstand all kinds of weather. The formed Plexiglas faces of this sign are enclosed in a galvaneal metal case. All lettering is white on telephone blue background processed on the inside of the face. The OD-1 is illuminated by four 15-watt incandescent lamps and is 100% waterproof. This sign conforms to all Underwriter's outdoor specifications and comes equipped with a heavy-duty hanging bracket. Dimensions of sign are 7 3/4" high and 24 1/16" long.

WRITE FOR FREE CIRCULAR TODAY

BUCKEYE TELEPHONE & SUPPLY CO.
1250 Kinnear Road — Columbus 8, Ohio

Company. Mr. Dodd gave an entertaining discussion of the problems and headaches he had run into in his recent dial conversion program, and advised other companies planning conversion to "get all the schooling you can, know your equipment and what makes it operate, and what will keep it operating at an efficient condition to render good service."

"Go to it — and your only regret will be, like ours, that you didn't convert sooner," Mr. Dodd said. "Never a day goes by that we do not receive a compliment on our new service."

On that hopeful note one of Minnesota's most informative and interesting conventions in recent years came to an end. — THE END.

Washington Bureau Reports

(Continued from page 34)

by the Bell Telephone System for its teletypewriter exchange service and private line telegraph service, which are directly competitive with the tele graph services of Western Union, and produce revenues of $67,000,000 a year.

"It is obvious that the rates charged by Bell for these services are a matter of direct concern to Western Union and, unless they are sufficiently high to be fully compensatory, they are unfair competition to Western Union. The Commission is now making a separate study to determine the proper allocation of Bell System costs to its telegraph operations, so that it can determine the validity of these charges."

Informed FCC sources were quick to point out that Chairman Walker's statement should not be construed as indicating a formal rate proceeding, or any judgment at this time that present TWX and private line telegraph rates may not be compensatory.

Rather, it was brought out, for the past year or more the FCC staff has been considering its lack of cost data underlying rates for Bell System special services, including TWX and private line telegraph. As a result, after talks with Bell System representatives and development of plans for the study, the Commission wrote the American Telephone & Telegraph Co. giving official recognition to the project.

Theater TV

WITHOUT waiting for FCC decision on the future course of the theater television hearings, the Motion Picture Association of America and the National Exhibitors Theater Television Committee have changed the course themselves in a petition filed with the Commission.

The two motion picture groups said they would have no objection to a dismissal of their petition for an allocation of frequencies for theater TV purposes if the FCC will approve limited common carriers, using existing common carrier fixed frequencies, and providing theater TV service only, under certain conditions.

The conditions are that the Commission issue "a statement of policy designed to make clear (a) that the Commission will expect all common carriers utilizing the common carrier frequency allocations to cooperate in the resolution of conflicts pertaining to the utilization of those frequencies through advance joint consultations, (b) that it will expect interconnection of the facilities of such common carriers with respect to channels suitable for theater television transmission purposes where frequency usage conflicts must be resolved, either by the parties or by the Commission, in favor of the general common carriers, and (c) that in such cases the general common carriers will be expected to provide facilities technically equivalent to those of the theater television carrier with which interconnection is desirable."

The first request in the theater TV petition was that the Commission "determine that a limited or restricted common carrier furnishing only a theater television transmission service, including associated audio transmission, is eligible to use the current fixed common carrier frequency allocations for that purpose."

The theater TV case has aroused considerable interest in the telephone field, both because of the attempts of NPAA-NETTC to obtain some common carrier frequencies for theater TV-only use, and also because of the element of possibly "cream-skimming" competition with existing common carriers. —THE END.

Construction
With the Double
and America's
revenue-saving
in long-lasting pol
is yours when you u
DIAMOND
C
POLES
Now better than ever, as
made in Colfax Lumber &
Creosoting Co.'s NEW plant
All Diamond C poles are carefi
selected from trees growing in
heart of the famous Southern Yel
Pine belt. Each pole is graded acc
ing to physical properties desired
pressure-treated with 8 lbs. (more
you want it!) of grade No. 1 creo
oil, per cubic foot of wood. A new
modern treating plant promises bet
than-ever quality and faster deliver
Have the lowest possible annual p
cost. Specify . . .
DIAMOND
C
COLFAX LUMBER & CREOSOTING COMPANY,
STROMBERG
Telephone
CARLSON
TELEPHONES, SWITCHBOARDS • SOUN

Materials and Supplies . . .

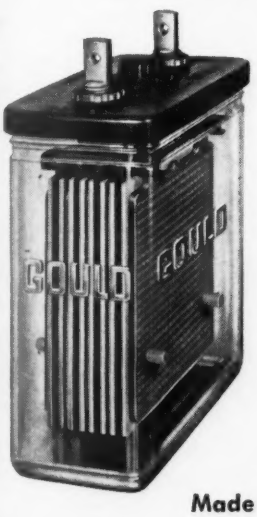
Guarantee of Stromberg-Carlson Leading Manufacturers . . .

the new "1400" series Stromberg-Carlson telephone

comes in 7 assorted "styles"!

There's not a need in telephony which the "1400" series hasn't foreseen—and met! Adaptable as desk set or wall phone—for manual or dial use—and can be used with practically any current American made dial. Ask for complete descriptive brochure.

the battery that lasts practically forever



gould planté

For long life and uniform dependable service, no other telephone battery equals the Gould Planté. It has rolled up amazing performance records, remaining in active full-float service for 20 years, 30 years and longer!

In the Planté, *all* of each positive plate is pure lead, containing *no* antimonial impurities. Thus, Gould has eliminated the primary cause of self-discharge, capacity losses and shortened battery life. Planté batteries float at constant voltage and maintain rated capacity all their life. Because they almost never need service, maintenance is negligible. If you would cut battery costs to a minimum, choose Planté.

Made by GOULD-NATIONAL BATTERIES, INC.

cook's type 53 interior junction box

Designed for use in P.B.X. installations, in small unattended exchanges and for the floor distribution of cables in factories, offices and stores where screw connections for drop wires are desired—with *economy*. Wooden base; enameled metal cover. Solder clips on Cable side; screw connections on drop side. Furnished in 13 and 26 pair capacity.

Mfd. by Cook Electric Co.

Distributed by STROMBERG-CARLSON

ROCHESTER • CHICAGO • ATLANTA • KANSAS CITY • SAN FRANCISCO • TORONTO

SOUND EQUIPMENT AND ELECTRONIC CARILLONS • INDUSTRIAL, INTERCOMMUNICATION SYSTEMS • TELEVISION, RADIOS AND RADIO-PHONOGRAPHS

SUPPLIER'S NEWS BRIEFS

S. E. Wright Named Schauer Vice Pres.

STEWART E. WRIGHT has been appointed vice-president in charge of sales in all divisions of the Schauer Manufacturing Corp., Cincinnati. In

STENART E. WRIGHT, vice president in charge of sales, Schauer Manufacturing Corp., Cincinnati, Ohio.

making the announcement, A. J. Kohn, Schauer president, remarked: "Mr. Wright, since his arrival in Cincinnati as general manager of sales, in 1945, has helped immeasurably in the rapid growth and development of the business, and we are anticipating our greatest year under his sales guidance."

Before becoming associated with Schauer, Wright was general sales manager of the National Telephone Supply Co., Cleveland.

Less than a year ago, a new Schauer plant was opened in Rossmoyne, Ohio. The Schauer Manufacturing Corp. manufactures speed lathes and electrical equipment for the telephone, telegraph, radio and automotive industries.

Five Appointments Made By Electric Products Co.

IN LINE with its policy of developing engineering and production facilities to handle an expanding business, Gordon J. Berry, president of The Electric Products Co., Cleveland, Ohio, has announced the following appointments:

Dr. W. A. Thomas has been appointed chief engineer and will be responsible for all electrical and mechanical design engineering, development and research. He was formerly manager of Electrical Engineering.

E. D. Smith is now consulting engineer and will be responsible for assigned engineering projects requiring highly specialized investigation and development.

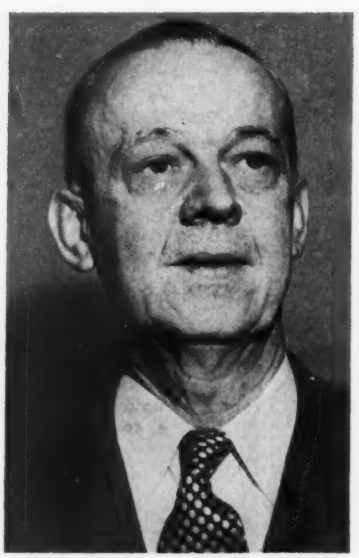
J. J. Unger becomes manager of Electrical Engineering and will be responsible for all electrical design activities.

J. R. Williams, formerly the central planning manager, has been appointed manufacturing manager and will be responsible for all production, production and inventory control and industrial engineering.

R. H. Worby has been appointed chief industrial engineer and will be responsible for methods, tools, plant layout, materials handling, plant engineering and maintenance.

Stromberg-Carlson Advances F. W. Haupt To New Post

FREDERIC W. HAUPT has been appointed to the position of advertising manager of the Telephone and



Two promotions have been announced by Robert A. Kuhn, president, American Electrical Heater Co., Detroit manufacturer of American Beauty Electric Irons. HENRY G. MOHRING (left), formerly treasurer, is now vice president in charge of finance. SAMUEL E. SCOTT (right), formerly comptroller, is now treasurer. The firm is now in its fifty-ninth year of continuous production of electric heating devices.

Sound Divisions of the Stromberg-Carlson Co., Rochester, N. Y., according to R. C. Tait, president. For the past eight years Mr. Haupt has been assistant advertising manager of the company. Because of the increased volume of business in telephone and sound, he will assume complete advertising and public relation responsibilities in these divisions of the company's operation, according to Mr. Tait.

Prior to 1945 Mr. Haupt was also associated with the Stromberg-Carlson Co. from 1941 to 1943, serving as personnel aide with the Quality Control Department.

A lifelong resident of Rochester, Mr. Haupt's previous business experience was with the Leo Hart Printing Co., where he served as art director and vice-president from 1926 to 1941. From 1943 to 1945 he was associated with the Case-Hoyt Co. of Rochester in the creative department.

Born in Rochester, Mr. Haupt was educated in the city's schools and attended the Mechanics Institute Art School, now Rochester Institute of Technology. Married in 1928 to Dorothy Bingham, the Haupts have two children, Richard, a senior at Norwich University, and Mary, a freshman at the College of Wooster in Ohio. Actively interested in civic affairs, Mr. Haupt has served as scoutmaster and district chairman of the Boy Scouts and as chairman of the Boys' Work Committee, of the central branch of the YMCA. Other clubs and interests include the Rochester Ad Club, Rochester Industrial Advertisers, Advertising Council, Adirondack Mountain Club, Rochester Chapter AMA, and a charter member of the Penfield Rotary Club.

A lifelong member of Brick Presbyterian Church in Rochester, Mr. Haupt, an elder, has been closely identified with the Church School and served as the first chairman of the Board of Christian Education. For many years he and his wife Dorothy have served as teachers and superintendents in the Church School. The Haupts reside in Penfield, N. Y.

C. & D. Batteries Appoints Thiltges To Sales Post

SAMUEL W. GIBB, vice president in charge of sales of C & D Batteries, Inc., manufacturer of storage batteries, recently announced the appointment of Frank N. Thiltges as manager

FRANK N. THILTGES

of communications, sales division, Chicago, Ill., to cover the Independent telephone industry.

Mr. Thiltges attended Chicago Institute of Technology and during the war was associated with the Buick Motor Division of General Motors, Inc., as process engineer on Pratt & Whitney Aircraft engines. Since 1944 he has been with the Cook Electric Co., working in the engineering and sales department of the Telephone Division.

Mr. Thiltges is a member of the Park Ridge, Ill., University Club and active in the Independent Telephone Industry.

The Ansonia Wire & Cable Co. has announced the appointment of KENNETH C. GILLETTE to the new position of direct factory representative for Ankoseal wire and cable with headquarters in Chicago. Most recently Mr. Gillette represented James B. Kearney Corp. in the communication field. He has been associated with the telephone industry since 1936 including five years in the Plant Engineering Agency of the Chief Signal officer in Washington, D. C. He was discharged from the Army in 1946 with the rank of Major. His formal education was received at Northwestern University. The home address of Mr. Gillette is 133 Williston Street, Wheaton, Ill.

Leich Names Paul Barnes Switchboard Sales Mgr.

R. W. SIEMUND, president of Leich Sales Corp., Chicago, has announced the appointment of Paul Barnes to the position of switchboard sales manager for the Leich corporation.

Mr. Barnes has considerable experience in switchboard engineering, maintenance and sales. After a long period of employment with the Western Electric Co., Mr. Barnes came to the Leich Electric Co. in Genoa, Ill. in 1941 as an equipment engineer.

Here he worked on engineering and development of magneto, common battery and dial switchboards until 1948. In 1948 Mr. Barnes joined the Leich Sales Corp. as a sales engineer. The ever increasing number of dial conversions has made it necessary for Mr. Barnes to spend most of his time in the sales engineering of dial switching equipment.

At the same time Mr. Siemund announced the addition of Gerald Morris to Leich's switchboard sales department. Mr. Morris majored in electrical engineering and received his degree from the University of Nebraska.

After a short time as a junior engineer with the Lincoln Telephone & Telegraph Co., he entered the U. S. Army and was with the Plant Engineering Agency of the Signal Corps until Sept., 1952.

Philco Reorganizes Canadian Operations

JAMES H. CARMINE, executive vice-president, Philco Corp., Philadelphia, Pa., has announced that manufacturing and distribution operations of Philco Corp. of Canada, Ltd., Toronto, have been integrated with Philco International Corp.

The reorganization move brings under one direction, Mr. Carmine said, all of the world-wide manufacturing and sales activities of Philco

(Please turn to page 90)

SUPPLIES OF Proven Dependability

● Shipment of guaranteed line supplies made from distribution center nearest you . . . Kellogg's warehouses located in Chicago, Kansas City, Dallas, San Francisco and St. Paul.

The following nationally-known manufacturers of supplies for the independent telephone field are participating in the 1953 Kellogg Co-operative Campaign.

American Creosote Works, Inc.

Ansonia Wire & Cable Company

John Bean Division
Food Machinery and Chemical Corp.

Bishop Manufacturing Co.

E. D. Bullard Company

Continental Cross-Arm Co.

'Cook Electric Company

Copperweld Steel Company

Diamond Wire & Cable Company

The Electric Storage Battery Co.

Everstick Anchor Company

General Insulated Wire Works, Inc.

Gould-National Battery, Inc.

W. A. Hammond Drierite Company

Indiana Steel & Wire Company

Kester Solder Company

Lorain Products Corporation

National Carbon Company
a Division of Union Carbide and Carbon Corporation

National Telephone Supply Co.

Newman Manufacturing Company

Ray-O-Vac Company

Raytheon Manufacturing Company

Reliable Electric Company

M. M. Rhodes & Sons Company

R T & E Co.

Schauer Manufacturing Corp.

Telkor, Inc.

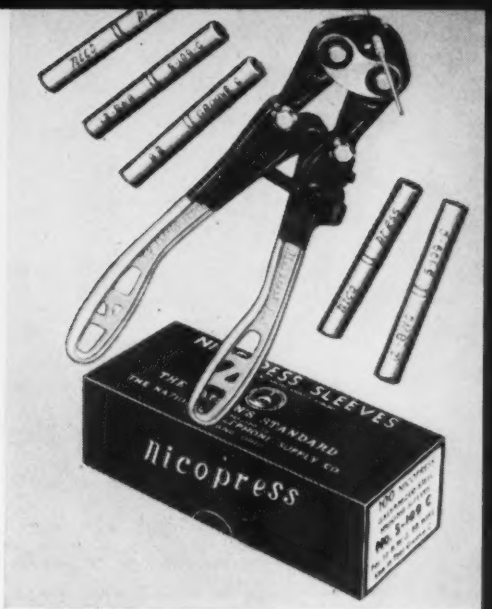
Vulcan Electric Company

Long Life Expectancy is built into Southern Pine Poles and Crossarms. Carefully and thoroughly treated by AMERICAN CREOSOTE WORKS, INC., these poles have the extra durability required for dependable service under toughest climatic conditions.

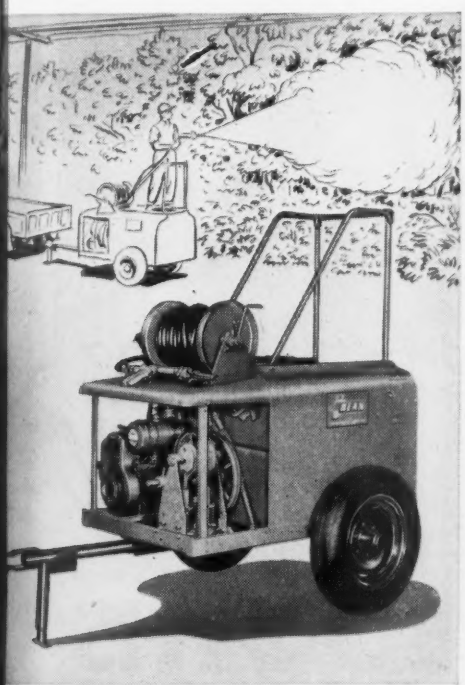
The Expanding Plates and Spreader Arms of Everstick Anchors insure 100% safety and maximum holding power under excessive strain. Ribbed base plate allows anchor to be locked solidly on rod. Quickly installed. Made by EVERSTICK ANCHOR CO.

Save Three Ways . . . on materials, man-hours, and maintenance with INDIANA STEEL & WIRE CO.'s Crapo HTL-85 and HTL-135 Line Wire. Galvanized by the famous Crapo Galvanizing Process, protected with heavy, ductile coating of zinc.

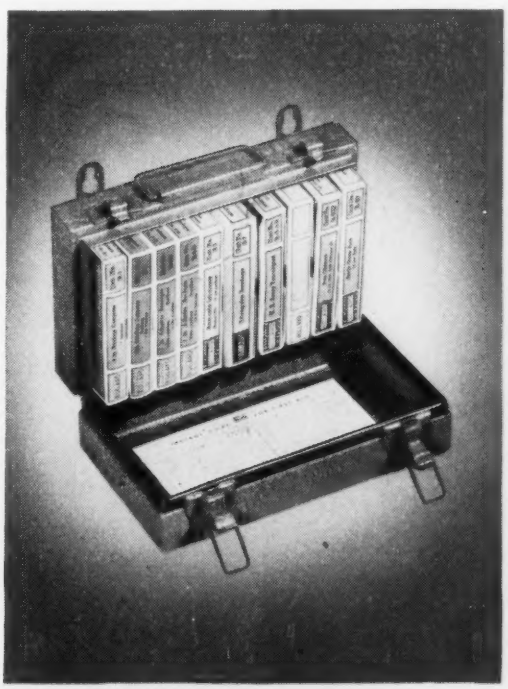
Improve Service, Reduce Costs and Power Supply Problems with RECTIFILTER. Eliminates installation of storage batteries . . . operates one or more P.B.X's, or one or more Key equipments direct from an A.C. source. Made by RAYTHEON MFG. CO.



Simple, Quick and Sure! For splicing two wires of different sizes, there's nothing simpler than using Nicopress reducing sleeves and the Nicopress 31-DC tool. Splices are always tight and strong. Made by the NATIONAL TELEPHONE SUPPLY CO.



Use John Bean Versatile Power Sprayers for economical chemical control of weeds on telephone right-of-ways. Model shown above can be drawn by jeep, passenger car, light truck or tractor. JOHN BEAN DIVISION, Food Machinery and Chemical Corp.



First Aid Firsts! Make first aid treatment easy and safe. Contents of Weatherproof Unit Packet Kits protected *always* indoors or out . . . have generous finger room for removal of packets. Universally approved. Made by E. D. BULLARD COMPANY.

Save Installation Time and Money with RT&E Co.'s type MP Cable Terminal for use with plastic insulated and jacketed cable—made for terminating 6, 11, or 16 pair. Terminal provides an ideal test, check and cut-in point without reopening the cable.

Send Your Next Order for Supplies to

KELLOGG AN AT&T ASSOCIATE

AN ASSOCIATE OF INTERNATIONAL TELEPHONE AND TELEGRAPH CORPORATION

KELLOGG SWITCHBOARD AND SUPPLY COMPANY

GENERAL SALES OFFICES: 79 W. MONROE ST., CHICAGO 3, ILL.

BRANCH OFFICES: 406 South Main Street, LOS ANGELES 13, CALIF. — 720 S. W. Washington St., PORTLAND 5, OREGON

BRANCH WAREHOUSES AND OFFICES:

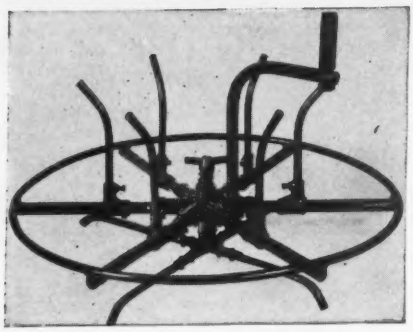
6000 W. 51st Street, CHICAGO 38, ILLINOIS

4501 Truman Road, KANSAS CITY 1, MISSOURI

1663 Mission Street, SAN FRANCISCO 3, CALIF.

410 No. Syndicate Ave., "Midway Area", ST. PAUL, MINNESOTA

1515 Turtle Creek Blvd., DALLAS 2, TEXAS



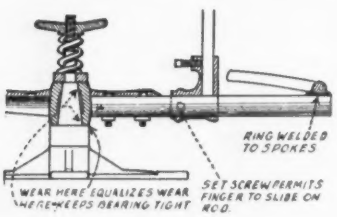
For Salvaging Used Telephone Wires

The Suttle reel with the take-up handle provides six adjustable forks to make a round coil when taking down used wire. Ideal for salvaging that used wire you may need next winter.

For Stringing or Taking Up All Telephone Wires

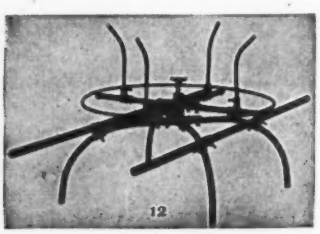
Suttle Wire Reels

7 — Styles or Models — 7



It Never Wobbles

The cone-bearing feature on Suttle reels prevents spindle wobble even after years of wear because the socket slides up on the cone as it wears.



Manufactured by Suttle

See Your SUTTLE Catalog

Serving Independent Telephone Men Since 1910

Suttle EQUIPMENT CO.

LAWRENCEVILLE ILLINOIS

(Continued from page 87)

Corp. The appointment of Sydney L. Capell as president of Philco International with headquarters in Philadelphia was announced recently. Mr. Capell, for 17 years, had been vice-president and general manager of Philco Corp. of Canada.

At the same time, Mr. Capell announced that W. H. Jeffery, general sales manager of Philco's Canadian corporation has been named general manager of that company. L. B. Kiely, formerly merchandising manager, succeeds Mr. Jeffery as general sales manager.

Philco International Corp. has distribution centers in more than 100 countries and manufacturing or assembly plants in six countries. During the past year, Philco International acquired a new, modern plant in London where many of the company's export models will be engineered and produced for sale.

Federal Elects Maginnis Vice Pres. & Chief Engnr.

ELECTION OF William P. Maginnis as vice president and chief engineer of Federal Telephone & Radio Corp.,

WILLIAM P. MAGINNIS, newly elected vice president and chief engineer of Federal Telephone & Radio Corp., Clifton, N. J.

Clifton, N. J., associate of International Telephone & Telegraph Corp., has been announced.

Mr. Maginnis, who will direct telephone, radio and vacuum tube engineering for Federal, joined the company in 1951. He was with the Radio Corp. of America for 21 years

OPEN THE DOOR TO INCREASED REVENUE

With Churchill **TELEPHONE BOOTHS**

All CHURCHILL BOOTHS Distributed by

- Automatic Electric Sales Corporation
- J. H. Bunnell and Company
- Graybar Electric Company
- Kellogg Switchboard and Supply Company
- Leich Sales Corporation
- Lindsay Telephone Supply Company
- Stromberg-Carlson Company
- Suttle Equipment Company

CHURCHILL CABINET COMPANY

CHICAGO 47, ILLINOIS

and headed components engineering at the RCA Camden plant prior to joining Federal. Previous to his Camden assignment, Mr. Maginnis was chief engineer at the RCA manufacturing plant in Bloomington, Ind.

Mr. Maginnis started his career in communications engineering at the Bell Telephone Laboratories, Inc., in New York. In 1930 he left Bell to begin his long association with RCA.

New Appointments Announcd By Kellogg

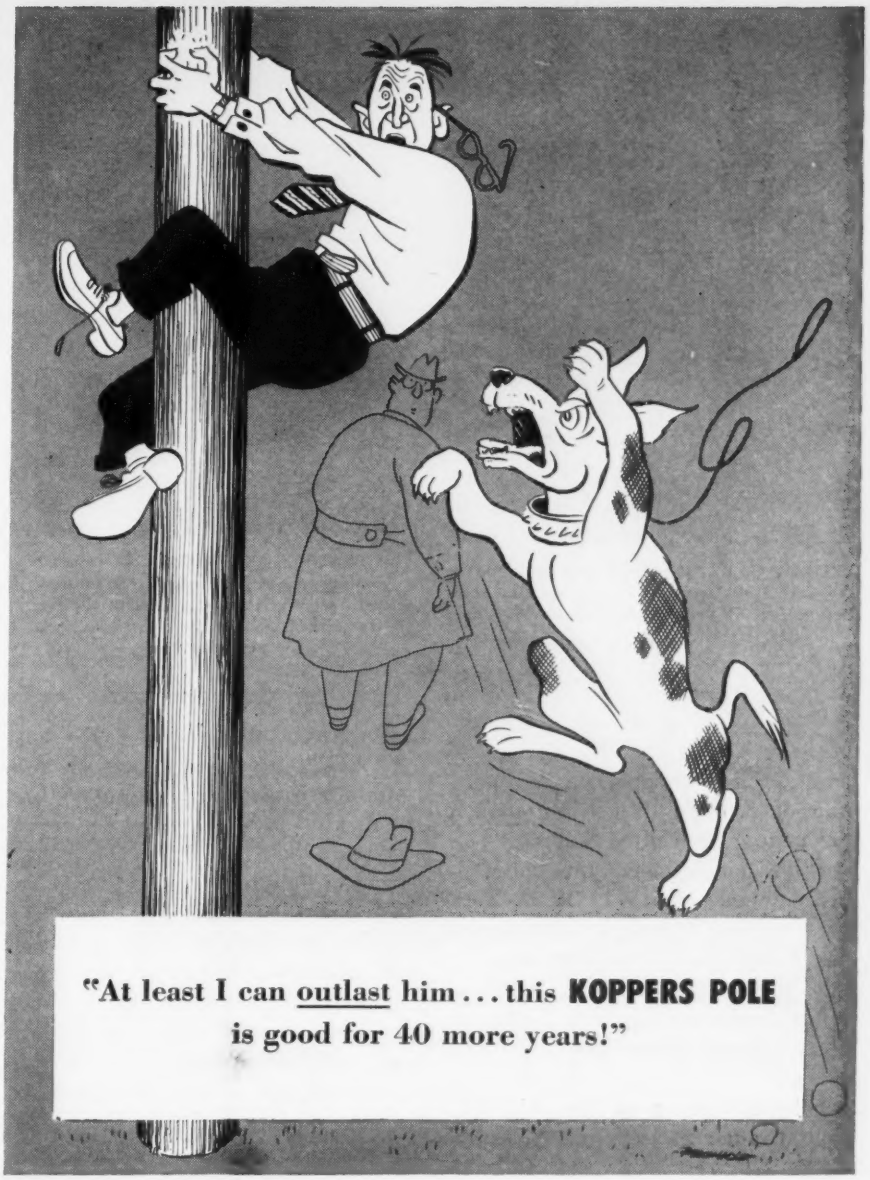
F. M. Parsons, vice-president and sales manager, Kellogg Switchboard & Supply Co., Chicago, has announced the appointment of C. E. Brown as division manager of the newly created Chicago Division, consisting of Illinois, Indiana, and Wisconsin. He will be in charge of sales of all Kellogg products in these states. Mr. Brown joined Kellogg immediately following his release from the Army in 1919. His first post was at Kellogg's Kansas City branch. Later he served as division manager of Kellogg's branches in Kansas City, Mo., San Francisco, Calif., and Columbus.

C. E. BROWN has been appointed Division Manager of Kellogg Switchboard & Supply Co.'s newly created Chicago Division, consisting of Illinois, Indiana and Wisconsin

Ohio. He was appointed manager of Supply Sales, wth offices in Chicago, in 1944, which position he held until his present appointment. Mr. Brown will have his headquarters at the Chicago Branch of Kellogg, 6000 West 51st Street, Chicago, Ill.

Mr. Parsons also announced the appointment of William G. Vance to the office of manager of the Supply Sales Department of Kellogg, effective Feb. 1, 1953. Mr. Vance joined Kellogg in 1951 as priorities manager, in which capacity he handled all government

(Please turn to page 92)



● In this kind of situation, a man's best friend is a *pole.*

Linemen also have a friendly feeling toward Koppers Poles. When climbing these poles, they *know* their gaffs will get a good, solid bite on wood that hasn't been weakened by shell rot.

Because they *retain* their strength, Koppers Poles make your line operation easier and more economical. They cut your replacement costs, too.

Specify Koppers Full-Length Pressure-Creosoted Poles. You'll get long and trouble-free pole service.

KOPPERS COMPANY, INC. PITTSBURGH 19, PA.

KOPPERS PRESSURE-CREOSOTED WOOD

priority matters for the company. Mr. Vance is an attorney and a graduate of the University of Ill. As manager of the Supply Sales Department, he will be responsible for the promotion and sale of products of other manufacturers distributed by Kellogg. In addition, he will supervise the operation of Kellogg Branch warehouses throughout the United States.

WILLIAM G. VANCE has been appointed to the office of Manager of the Supply Sales Department at Kellogg Switchboard & Supply Co., effective February 1, 1953.

EDWARD E. KLEINSCHMIDT, founder and president Kleinschmidt Laboratories, recently received a special citation from the Armed Forces Communications Association.

Other appointments announced by Mr. Parsons were: (1) K. C. Tompers appointed division manager of the Northwestern Division with offices in St. Paul, Minn., covering Minnesota, North Dakota, South Dakota, eastern Montana and Northern Wisconsin; (2) K. K. Cunningham has been transferred from the Chicago Branch at Kellogg's Sales Offices at 79 West Monroe st., Chicago, Ill; and (3) J. Meier has been appointed manager of the Chicago Branch Warehouse.

E. E. Kleinschmidt Honored by AFCA

EDWARD E. KLEINSCHMIDT, founder and president, Kleinschmidt Laboratories, Deerfield, Ill., and inventor of "Teletype" and the new portable "Teletypewriter", has been awarded a special citation by the Chicago chapter, Armed Forces Communications Association, for "his distinguished contributions to the progress of civilian and military communications — particularly in the field of printed, electrically transmitted messages."

One hundred fifty Chicago area communications industry executives and representatives of the Armed Forces attended the Chicago chapter dinner recently in the Kleinschmidt laboratories, at which Chicago Chapter AFCA President James H. Kellogg presented the Citation — first of its kind to be given by the organization.

The Citation points out that "for 55 years Kleinschmidt has been tireless in his efforts to advance the art of civilian and military communications," and that "his own capacity for inventiveness and clear thinking has enabled him to develop the picture telegraph (1900); railway signalling devices (1910); the printing telegraph apparatus (1912) which later became known as "Teletype"; and the new light-weight high speed "Teletypewriter" for the Armed Services of the United States (1945)."

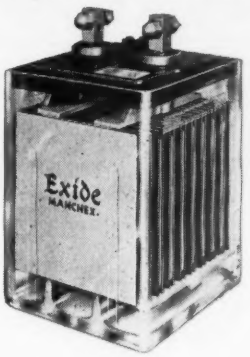
Western Union May Bid for TWX

ALTHOUGH Western Union Telegraph Co. suffered from rising costs and strike expense last year, company officials feel that it is in a position to resume negotiations looking toward the purchase of the competitive TWX communications system, operated by American Telephone & Telegraph Co.

The company last month reported net earnings of $1,277,789 or $1.04 a share for 1952, despite a $6,945,364 deficit resulting from a seven-and-one-half week strike of employes last spring.

Speaking before a February luncheon meeting of the New York Society

(Please turn to page 94)

Construction
With the Double
and America's
Exide-Manchex
telephone batteries


assure
positive operation
For Central Office
and Private Branch
Exchange Equipment
This is proven daily in exchanges of every
. . . for over 60 years Exide Batteries have
serving the Telephone Industry . . . the M
chester positive plate with its exclusive bu
type construction provides exceptionally
life . . . latest developments on molded g
jars permit compact space saving installa
. . . heavy terminal posts with copper in
provide extra conductivity for sustained
age at high discharge rates . . . micropo
rubber along with slotted plastic separa
are impervious to chemical and electrical
actions . . . plastic spacers assure plate al
ment . . . for assured dependability, long
and low-cost maintenance use Exide Manch
The Electric Storage Battery C
Philadelphia, Pa.
1888 . . . Dependable Batteries
for 65 Years . . . 19
STROMBERG Telephone CARLSON
TELEPHONES, SWITCHBOARDS • SOU

...Materials and Supplies...

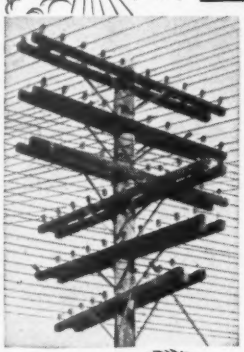
...uarantee of Stromberg-Carlson ...eading Manufacturers...

kennecott telephone cable

is pre-tested to operating company requirements

Before a single inch of Kennecott cable leaves the mill, it is tested for Dielectric Strength, Insulation Resistance, Conductor Resistance, Capacitance and Fixed Dimensions. Such care in manufacture is your warranty of efficient, trouble-free performance in the field. Specify "Kennecott"—distributed by Stromberg-Carlson.

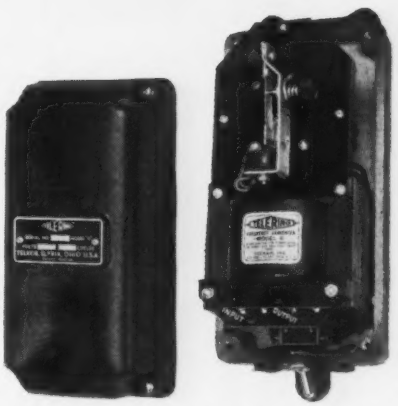
"dependable" *means both the trade-mark & the guarantee of cross-arms by* American Cross-Arm Inc.



The finest pole and wire installation is useless if cross-arms fail. "Dependable" Cross-Arms are all that the name implies—made of sturdy, American woods, long seasoned, fashioned and finished to stand every weather condition from desert heat to mountain blizzards.

In Douglas Fir—Creosoted Yellow Pine or Gulf-Red Cypress.

for TELEPHONE RINGING POWER



Model "R"
4" x 4½" x 10"
Wt. 7½ lbs.

TELERING

is best in
- PRICE
- PRINCIPLE
- PERFORMANCE

An excellent ringing machine for telephone systems large or small, civilian or in military service.

ALTERNATING and DIRECT CURRENT operated units.

Rated output of standard unit, operating on 110-115 V, 60 CPS is Approx. 90V, at 20 CPS, 30w. Data on units operating on other voltages and frequencies furnished on request.

"You will be pleased with your investment"

Distributed by STROMBERG-CARLSON

ROCHESTER • CHICAGO • ATLANTA • KANSAS CITY • SAN FRANCISCO • TORONTO

...UIPMENT AND ELECTRONIC CARILLONS • INDUSTRIAL INTERCOMMUNICATION SYSTEMS • TELEVISION, RADIOS AND RADIO-PHONOGRAPHS

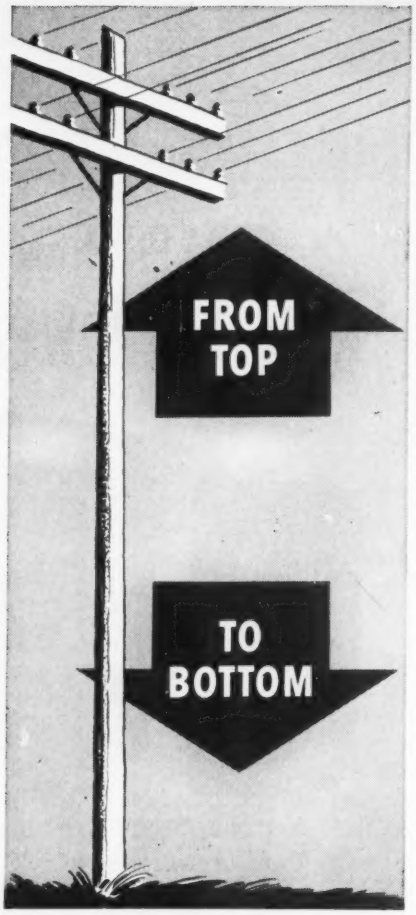
(Continued from page 92)

of Security Analysts, McMains said telephone companies are currently doing a $67,000,000-a-year telegraph business, or more than 27 per cent of the nation's total. This, he pointed out, compares with less than 12 per cent done by Postal Telegraph prior to its merger with Western Union in 1943.

Western Union has already sold to the American Telephone & Telegraph Co. a telephone system formerly owned by Postal Telegraph, Mr. McMains said. "Now, Western Union in turn wants to buy the record communications business operated by the telephone system—to carry out the intent of Congress as expressed in the law permitting the merger of Western Union and Postal Telegraph."

He recalled that AT&T in 1943 "offered to sell its telegraph properties and services to Western Union." Negotiations were continued, he said, until late 1945, when they were suspended because Western Union finances, due to higher operating costs and retroactive wage increases im-

Gould-National Batteries, Inc. has appointed W. H. BURKEY district manager for its Industrial Division in the St. Louis area. Mr. Burkey has been associated with the battery industry for more than 35 years, and has been with Gould-National and its predecessor companies since 1930. His experience includes eight years in submarine and diesel battery maintenance and repair with the U. S. Navy. For 11 years he sold automotive and industrial batteries out of the company's Chicago office, and since 1941 has been serving mining companies, railroads, utilities and other industrial users of batteries in the St. Louis area.



Penta gives CLEAN protection

You'll find it's the PENTA-treated poles that last longer, stand stronger, stay *cleaner*. For PENTA is the clean way to safeguard poles, crossarms and other wood construction. PENTA is a chemical formula that's always the same—deep penetrating, powerful, long-lasting. PENTA-treated poles are protected from top rot, shell rot, insect damage, ground-line decay . . . last years longer, cost less to maintain . . . and they're *clean*. Write today for names of companies near you who supply PENTA-treated wood products.

CHAPMAN CHEMICAL COMPANY
Dermon Building, Memphis 3, Tenn.

CHAPMAN®

Penta Preservative

Runzel
TELEPHONE CORDS

Quality Cords . . .
FOR ALL MAKES AND TYPES OF INSTRUMENTS
When cord replacements are needed . . .
specify **RUNZEL**

RUNZEL
Cord and Wire Co.
1723 W. MONTROSE AVE.
CHICAGO 13, ILL.

posed by the National War Labor Board, made the purchase impractical.

"Negotiations were resumed," Mr. McMains said, late in 1949, and "although many talks have been had between representatives of both companies, no agreement has been reached."

At the annual meeting of AT&T stockholders last year, Cleo F. Craig, president, said his company would consider sale of its TWX service to Western Union if it appeared to be in the public interest and in the interest of AT&T stockholders.

Western Union's 1952 earnings of $1,277,789 or $1.04 per share, compare with $5,967,990 or $4.85 a share in 1951. Assuming a continuation of the present level of business, 1953 earnings should compare favorable with 1951, Mr. McMains said.

Gross operating revenues last year amounted to $194,889,037, down $7,014,016 from 1951, but larger than any previous year except 1947 when revenues were boosted during a nationwide telephone strike.

December gross revenues rose to $20,019,494, a gain of $1,641,131, or 8.9 per cent over December, 1951. Net income for the month was $2,410,745, against $898,599 in the same period a year earlier.

Mr. McMains said Western Union had competition not only from TWX service by telephone companies but also from "record message networks operated by the Government itself" and "subsidized air mail service which, ironically enough, is in effect supported by excise taxes collected from telegraph users."

Nearly four-fifths of Western Union's approximately $200 million-a-year-gross, he said, consists of domestic and overseas telegraph business. He listed annual revenues from other services as follows: leased wire, telemeter and private wire systems, $20 million; telegraphic money orders, $15 million; commercial news service, including stock tickers and sports tickers, $3 million; correct time service, nearly $1 million, and errand and distribution service, $1,500,000.

Frank L. Eldridge Dies: Career Started in 1903

The Independent telephone industry lost a friend, an advisor and a veteran member of its ranks on Feb. 10, when *Frank L. Eldridge*, 70, died at the Evanston (Ill.) Hospital.

The late Frank Eldridge (above) enjoyed attending state and national telephone conventions. During his many years of service he seldom missed a convention and several associations had honored Frank for his perfect attendance record.

Mr. Eldridge had been in the telephone business for 50 years. At the time of his death he was sales representative in the telephone industry for Ray-O-Vac Co., Madison, Wis., and Gould-National Batteries, Inc., Trenton, N. J.

Mr. Eldridge was born in Walcott, Ind., June 23, 1882. In 1902, he joined the engineering department of the Santa Fe Railroad. In 1903 he began his telephone career with the old Chicago Telephone Co.

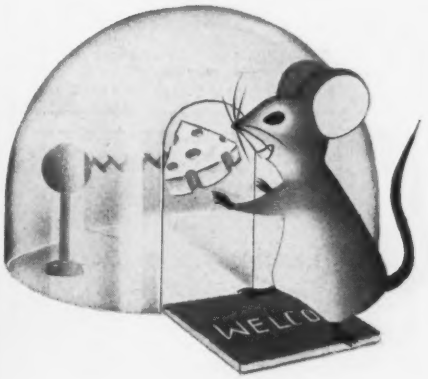
In 1907, he joined the American Telephone & Telegraph Co. as special agent handling toll adjustments and disputed charges. Later he was made service inspector, taking care of transmission tests and special assignments for the operating and commercial departments of AT&T.

In January, 1912, Mr. Eldridge left AT&T to become special agent in charge of long distance service for the old Illinois Telephone & Telegraph Co.

In 1913, he was appointed secretary of the Central States Telephone Service Association, which became the service department of the Independent Telephone Association of

(Please turn to page 97)

We've Built a Better Mousetrap



FLOTROL

THE BATTERY CHARGER WITH NO MOVING PARTS *

Model 12008

And telephone men are beating a path to our door.

They've found that FLOTROL does what they always hoped their battery charger really would do; IT HOLDS CONSTANT FLOATING VOLTAGE on the battery.

They've found, too, what it can mean to have a charger which doesn't require attention, one they can depend on to do its job, year in and year out, without costly and annoying routine maintenance or adjustment.

For complete information, write for Bulletin 160, which describes the single-phase models, from 1/2 ampere to 24 amperes, and Bulletin 161 which covers three-phase models from 25 amperes to 200 amperes.

* *No good on mice.*

LORAIN PRODUCTS CORPORATION
1122 F STREET LORAIN, OHIO

FLOTROL PARTNERS IN DEPENDABILITY SUB-CYCLE

Professional Services

JOHN J. MORAN
Consulting Engineer
605 N. Maple — Cookeville, Tenn.
Accounting—Appraisals—Budgets
Financing—Engineering—Rates
COMPLETE ADVISORY SERVICE

PENN LINE SERVICE
Scottdale, Pa.
Phone 765 or 686
CREWS
Construction — Trimming
Station Installers — Cable Splicing
Chemical Spraying
Right of Ways

MURER & SMITH
ENGINEERS & CONTRACTORS
Engineering—Construction—Installation
A complete service to the Telephone, Electrical and Pipe Line operating companies.
440 S. Brentwood Blvd. — Clayton 5, Mo.
St. Louis Telephone Parkview 2747-7282

TELEPHONE ENGINEER and CONSULTANT FOR REA TELEPHONE PROJECTS
— O. B. BOHNY —
Tel. TA 1618—After 6 PM
5614 Swiss Ave — Dallas, Texas

Construction Crews — Station Installers
Central Office Installations
Cable Splicers — Complete Engineering
HENKELS & McCOY
6100 N. 20th St., Philadelphia 38, Pa.
Now Operating in 14 States

Trowbridge Construction Co., Inc.
—Telephone—
★ Engineering ★ Construction
★ Maintenance
Backed by Years of Bell Experience
1229 S. Clay St., Springfield, Missouri
Telephone 2-8901

CARL C. CRANE, INC.
Consulting Engineers
2702 Monroe Street, Madison 5, Wis.
Experienced in REA Procedures
Preallotment Surveys—Specifications
Design and Construction Supervision

CYRUS G. HILL
ENGINEER
Plant—Traffic—Commercial
Valuations and Original Cost
231 S. LaSalle St., Chicago 4

Installation Specialists
CENTRAL OFFICES
Installed-Modified-Removed
All Makes
COMMUNI-CATERING
P. O. Box 6712
CHICAGO 7, ILLINOIS

J. E. ALBERT
Engineering & General Consultant
Reports for
New Financing, Purchase, Sale
185 N. Wabash Ave. — Chicago 1, Illinois

Harris-McBurney Co. *Electrical Engineers*
A complete construction service for the telephone industry
Appraisals — Reports
297 W. Mich. Ave., Jackson, Mich.
Telephone 4-6126

Trenching for Buried Cable
Splicing Placing
- Our work develops regular customers.
- We guarantee satisfaction.
- References furnished without obligation.

Serving Missouri and adjoining states
DAVIS CONSTRUCTION CO., Sullivan, Mo.

TELEPHONE CONSTRUCTION
Aerial Cable and Rural Plant
Station Installation—Cable Splicing
Quality Workmanship at Low Cots
Midwest Utility Construction Co.
J. W. Packer, Prior Lake, Minnesota
Tel. Minneapolis HY 2808

W. T. KING
PROF. ENGR. — TELEPHONE CONSULTANT
Engineering, Accounting, Valuations, Traffic Depreciation Studies, Rates and General Management Services
306 So. Capitol — Lansing, Mich.
P. O. Box 216 — Telephone 5-1034

B. O. VANNORT ENGINEERS
Incorporated
Electrical—Civil—Mechanical
Telephone
A complete engineering service
700 South College Street, Charlotte, N. C.

TELEPHONE PRINTING
By People Who Know the Telephone Business.
See the Suttle Catalog
SUTTLE EQUIPMENT CO.
LAWRENCEVILLE — ILLINOIS

HIGHWAY UTILITY EQUIPMENT CO.
• *Sales* • *Installation* • *Repair*
Line Construction Equipment
"SERVICE FIRST"
For the Entire Southwest
Hole diggers — augers — truck bodies
Trailers — winches — derricks
Brush grinders
2925 N. W. 39th Terrace
Oklahoma City, — Oklahoma

D. J. NEALE
Telephone Engineer
Complete Outside Engineering, Construction, Maintenance and Planning
Nationwide Service
Topeka, Kansas — Telephone 4-2621

TELEPHONE CONSTRUCTION, INC,
Consulting, Engineering, Installation,
Good Machinery, Competent Workmen
Pole Digging and Cable Splicing
C. H. DAUBENDIEK
Secretary
Box 267, Telephone 012, JEFFERSON, IOWA

JAY G. MITCHELL
CONSULTING ENGINEER
APPRAISALS—COSTS—PLANT
7720 SHERIDAN ROAD — CHICAGO
FOR MAIL BOX 523 EVANSTON, ILLINOIS

SLOAN, COOK & LOWE
CONSULTING ENGINEERS
Suite 1344 — 120 South LaSalle Street
CHICAGO
Appraisals—Original Cost Studies
Depreciation, Financial, and Other Investigations

TELEPHONE ENGINEERING CORPORATION
CONSULTING ENGINEERS
Dallas, Texas
Designing—Appraisals of Telephone Systems
Experienced in R. E. A. Projects, Microwave
2210 Butler Street — P. O. Box 6633
Telephone LAkeside 5245

NOW

SEYMOUR SMITH presents

PRUNING SAWS

that CUT FASTER
LAST LONGER

No. 922

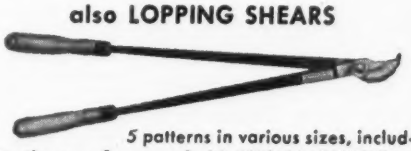
No. 622

No. 514

Specially designed for arborists and other professional users. A complete line of 7 patterns covering all requirements up to chain saw work.

Blades — made by Sandvik of famous Swedish charcoal steel — have fast-cutting, large, deep teeth with heavy set to prevent binding. Handles are of laminated hardwood, streamlined and free from horns and projections.

also LOPPING SHEARS



5 patterns in various sizes, including the new Seymour Smith TIFFANY PRUNER.

TREE PRUNERS

No. 11 Pruner Head

No. 11 "Telephone" tree pruner head, with 1" capacity and No. 12 with 1½" capacity are the finest available. Also rugged poles of selected spruce with seamless aluminum joints.

POLE SAWS

No. 20 Saw Head

No. 20 saw head has 16" needle point teeth, is adjustable to 3 positions. Uses standard poles.

PRUNING SHEARS

No. 90 Professional Double-Cut

For generations Seymour Smith has been supplier of the finest hand pruners for professional use. Made in 8 models for all requirements.

Most dealers carry Seymour Smith pruning equipment. Write us for descriptive literature.

SEYMOUR SMITH
OUR 103rd YEAR
The Line of Quality

SEYMOUR SMITH & SON, Inc.
32503 Main St., Oakville, Conn.

(Continued from page 95)

America, a forerunner of the present United States Independent Telephone Association.

In 1914, he joined the sales department as special representative of the Kellogg Switchboard & Supply Co.

He left Kellogg in March, 1919, to become general sales representative in the telephone and railroad field for the French Battery & Carbon Co., predecessor to Ray-O-Vac Co.

In 1930, Mr. Eldridge established the Frank L. Eldridge Co., with offices in Chicago. In addition to representing the Ray-O-Vac Company, he acted as telephone and railroad sales representative for various manufacturers. In 1936, he became associated with Gould Storage Battery Co., a predecessor of Gould-National Batteries, Inc.

Funeral services were held in Chicago on Feb. 13.

Honorary pallbearers included R. H. Burfeind, Chicago; J. I. Kennedy, Freeport, Ill.; A. S. Crane, Chicago; G. W. Rodormer, Park Ridge, Ill.; A. F. Adams, New York City; James H. Kellogg, George Ferguson, Chester Ruth, all of Chicago; Oscar Burton, Tyler, Tex.; J. K. Johnston, Indianapolis, Ind.; J. B. Haley, Washington, D. C.; George Morse and Ray Smith, both of Chicago.

Active pallbearers were C. E. Brown, C. H. McLean, C. H. Knapp, R. E. Williams, Roy F. Smith and R. C. Reno, all of Chicago.

Mr. Eldridge is survived by one son, Frank L. Jr., Muskegon, Mich.; four daughters, Mrs. Betty Smith, Davenport, Ia.; Mrs. Virgilyn Temple and Mrs. Mary Jane Gallagher, both of Boulder, Colo., and Mrs. Grace Martin, Peoria, Ill.; two brothers, Neal D. and Merritt F., both of Chicago; and four sisters, Mrs. Grace Warner, Chicago; Mrs. Edith France, Miami Beach, Fla.; Miss Hazel Eldridge and Miss Alice Eldridge, both of Chicago.

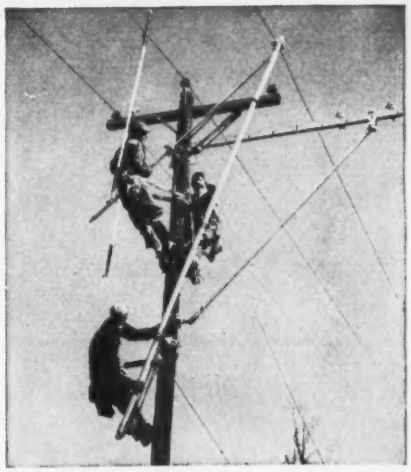
Two brothers, Harry E., and Willard H., preceeded Mr. Eldridge in death.

Motorola Appoints Mexico Distributors

THE APPOINTMENT of Equipos Electronicos de Mexico, S. A., Luis G. Cuevas Medina, general manager, as a co-distributor of Motorola com-

(Please turn to page 102)

SAFE ON THE JOB

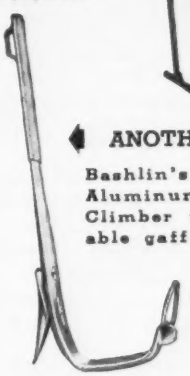


BASHLIN EQUIPPED!

Using

HOT LINE TOOL FACTORY DEMONSTRATORS

Men who think first of safety and efficiency on the job — use Bashlin Equipment.



ANOTHER FIRST

Bashlin's ALCOA alloy Aluminun Adjustable Climber with Removable gaff.

Self-locking screws assemble precision machined parts.

Write Today for Catalog No. 50

W.M. BASHLIN COMPANY

GROVE CITY 1, PA.

THE BUYERS' GUIDE and NEW PRODUCTS' SHOWCASE

For complete information on the products and services described in this department send in the coupon which appears on the opposite page. If you do not see a listing of the products and services that you are interested in, write BUYER'S GUIDE, 7720 N. Sheridan Road, Chicago 26, Ill. The information will be furnished quickly and without charge to telephone industry members.

ADVERTISING, Directories — *General Telephone Directory Co., 604 Pine Ave., Long Beach, Calif., and 1800 Busse Highway, Des Plaines, Ill.*—[ADV. 1]

BELTS — CLIMBERS — COMPLETE LINEMEN'S EQUIPMENT, *W. M. Bashlin Co., Bashlin Bldg., Grove City 1, Pa.*—[ADV. 2]

BELTS — CLIMBERS — PLIERS — SAFETY STRAPS — CONSTRUCTION TOOLS. *Klein & Sons, Mathias. 3200 Belmont Ave., Chicago 18. Ill.*—[ADV. 3]

BOOTHS—Acoustic Telephone — *Sherron Metallic Corp., 1202 Flushing Ave., Brooklyn 6, N. Y.*—[ADV. 4]

BRUSH & WEED KILLERS — *Thompson manufactures many types of brush and weed killers. Write for helpful information on specific problems. Thompson Chemicals Corp., St. Louis 3, Mo.*—[ADV. 5]

CABLE, All Plastic, *Aerial, Duct, Direct Burial, PBX, Switchboard.* — *The Ansonia Wire & Cable Co., Ansonia, Conn.*—[ADV. 6]

CORDS, Switchboard, Instrument and Operators —*Commercial Cord & Supply Co., Inc., 26 Main St., Clifton Springs, N. Y.*—[ADV. 7]

CORDS, Switchboard & Telephone — *Runzel Cord & Wire Co., 4727-31 Montrose Ave., Chicago 41, Ill.*—[ADV. 8]

ELECTRIC HOT WATER HEATERS. *Thermostatically controlled for any hot water heater, Vulcan Electric Co., Danvers 17, Mass.*—[ADV. 9]

FURNACES — For quickly and economically melting lead and paraffin — *Mutual Liquid Gas Equipment Co., Inc., 3600 W. Imperial Highway, Los Angeles, Calif.*—[ADV. 10]

INSULATORS, Porcelain — *Porcelain Products Inc., Box 300, Findlay, Ohio.*—[ADV. 11]

LIGHTWEIGHT PULLERS — *Coffing Hoist Company, 800 Walters St., Danville 5, Ill.*—[ADV. 12]

PIPE PUSHERS — *Giant Manufacturing Co., South 6th St., at 12th Ave., Council Bluffs, Iowa.*—[ADV. 13]

POLE HOLE DIGGERS — *For derrick mounted trucks. Tele-E-Lect Products, Inc., 9613 Minnetonka Blvd., Minneapolis 16, Minn.* —[ADV. 14]

POLES, Southern Yellow Pine — *Colfax Lumber & Creosoting Co., Inc., P.O. Box 23, Pineville, La.*—[ADV. 15]

ELECTRIC MOTOR: — One of the smallest electric motors ever manufactured is currently being mass produced by Connecticut Telephone & Electric, Meriden, Conn. Built to military specifications of size and performance, this "Connecticut" precision product measures only 1" x 1 1/8" x 2-1/2" — actually small enough to fit into your watch pocket. Two models are available with speeds of 8,000 or 12,000 RPM's.

POLES, Southern Yellow Pine — *Taylor Colquitt Company, 290 E. Main St., Spartanburgh, S. C.*—[ADV. 16]

POLES, Southern Yellow Pine — *Texas Creosoting Co., Orange, Texas.*—[ADV. 17]

PROTECTIVE EQUIPMENT — *Reliable Electric Company, 3145 Carroll Avenue, Chicago 12, Ill.*—[ADV. 18]

REBUILT TELEPHONE & SWITCHBOARDS — *Telephone Repair & Supply Company, 1760 Lunt Avenue, Chicago 2, Ill.*—[ADV. 19]

TRUCK BODIES — *Highway Trailer Co., Edgerton, Wisc.*—[ADV. 20]

WIRE, Insulated — **DATED DROP WIRE** — Neoprene or Weatherproof — *Alphaduct Wire & Cable Co., Milltown, N. J.*—[ADV. 21]

WIRE, Insulated Drop and Bronze or Copperweld — *Acorn Insulated Wire Co., Inc., 36 Freeman St., Pawtucket, R. I.*—[ADV. 22]

WIRE, Telephone, *for all inside and outside uses — Whitney Blake Co., New Haven, Conn.*—[ADV. 23]

Solenoids, relays, thermostats, switches, controls as well as complete electronic products are also produced by Connecticut Telephone & Electric for civilian and military purposes. In "Connecticut's" Meriden plant, engineers are constantly engaged in research and development of intricate electrical-mechanical advancements. — For complete literature on "Connecticut's" products and services, Check New Product 493.

MASONRY DRILL: — Dust packing which causes stalling is overcome by the design of a new Masonry Drill being introduced by Holub Industries, Inc., Sycamore, Ill. It is claimed that the drill, called "Hi-Twist", can be used for continuous drilling of concrete, stone, brick, and similar masonry materials as well as copper, brass and other soft metals.

The secret of dust removal is in the proper combination of oval flutes, narrow lands and fast spiral which carries the dust up and out of the hole as fast as it forms. As a result, less pressure is required and drilling can continue to desired depth without once removing drill to clean the hole. The drill can be used with any tool.

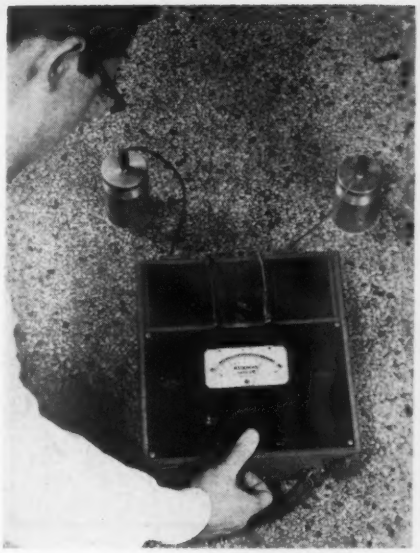
The "Hi-Twist" Drill is made of a tough alloy steel and has a carboloy tip — which resists dulling. The cost is comparable to other carbide tipped drills. Other advantages claimed are longer drill life and reduced drilling costs.

Sizes range from 11/64" to 1" for spiral fluted drills and 1-1/8" to 1-1/2" for straight fluted drills. Individually the drills are packed in a protective plastic tube. They are also available in handy roll kits of three and four popular sizes. —— For complete data, Check New Product 494.

VIBROTEST: — Designed to meet latest (Bulletin 56, June, 1952) National Fire Protection Association Recommendations for electrical resistance tests of conductive materials, Model #269 Vibrotest instrument has been announced.

Extensive use of earlier models of this type of Vibrotest on floors, furniture, personnel, etc. has been made in locations where hazardous atmospheres or chemicals require prevention of static electricity discharges.

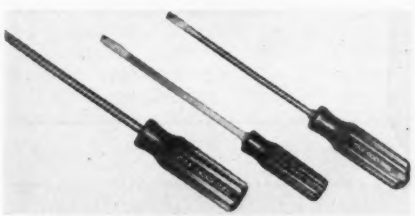
Model #269 Vibrotest has two color-coded



scales, one for conductive material tests and the other for personnel and conductive shoe tests. Two 10-foot leads furnished with the instrument are for use with the five-pound floor electrodes or for connection to other apparatus being tested. Model #269 Vibrotest operates from two self-contained No. 6 dry cells, (battery life approximately nine months in normal use), and requires no other power source.

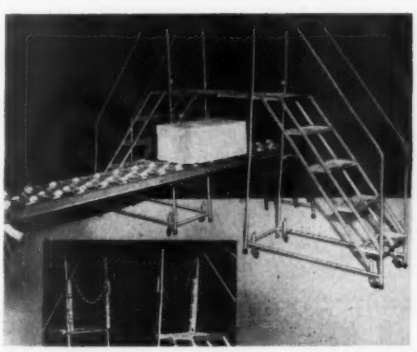
Instrument is housed in a steel case with removeable cover, overall size: 12-1/4" x 10-3/4" x 5-1/4". Net weight: 28 pounds. — For complete details, Check New Product 495.

TRUCK: — International model R-170, 154-inch wheelbase truck with public utility body, is a feature of the International Harvester Company's newly-introduced "R" line. The complete line includes 168 basic chassis models in 296 wheelbases. International medium and heavy-duty trucks provide for easy mounting and interchangeability of standard bodies. R-170 Series models, (gross vehicle weight ratings from 16,000 to 19,500 pounds) are available in 130, 142, 154 or 172-inch wheelbase. R-170 Series powerplant is the 100-horsepower Super Blue Diamond engine. It is available with gasoline or LPG fuel system. International R-line trucks are newly identified by the distinctive IH emblem, replacing the famed Triple Diamond. Styling is new. The line offers 307 new features developed at International's Fort Wayne, Ind., engineering and test laboratories and proved at its Phoenix, Ariz., desert Proving Ground. — For complete data, Check New Product 497.



SCREW DRIVERS: Utica Drop Forge & Tool Corp, Utica, N. Y., is now offering a new line of screw drivers. The complete line of 23 items comprises patterns in round blades, square blades, Phillips style and stubbies. Utica says the blades are made of SAE6150 Chrome Vanadium Electric Furnace Steel. The handles are of amber shockproof Tenite II. The blade lengths range from 12" to 1-¼".

Utica says it is setting the same manufacturing quality standards on the screw drivers as they do on their pliers and wrenches. — For complete data, Check New Product 496.



NEW LADDERS: — The passage blocks and inaccessabilities of areas above conveyor systems are easily eliminated by dual Ballymore Safety Step Ladders equipped with a connecting walkway. The walkway can be folded up so that the ladders may be used for normal requirements when not needed to cross over conveyors.

Standard size ladders are available for practically any required height. Built of steel, Ballymore Ladders are rugged, long-lived. Two types are supplied. One has rubber tipped legs only for permanent or semi-permanent installation. The other is equipped also with casters for easy movement. These casters automatically retract when a person steps on the ladder so that the rubber tippeds legs firmly engage the floor.

For complete specifications and prices on Ballymore Walk Overs, Check New Product 498.

IF YOU DO not see a listing in these columns of products or services you are interested in write "Buyers' Directory", 7720 Sheridan Road, Chicago 26, Illinois, for such information.

SEND IN THIS COUPON FOR MORE INFORMATION

Telephone Engineer Publishing Corp.
7720 N. Sheridan Road
Chicago 26, Illinois

Please forward complete information on the following products and services described in the Mar., 1953 issue of TELEPHONE ENGINEER & MANAGEMENT. (Check information desired.)

NEW PRODUCTS

NP 493 ..... NP 494 ..... NP 495 ..... NP 496 ..... NP 497 ..... NP 498 .....

SERVICES AND SUPPLIES

ADV. 1	ADV. 2	ADV. 3	ADV. 4	ADV. 5 .....
ADV. 6	ADV. 7	ADV. 8	ADV. 9	ADV. 10 .....
ADV. 11	ADV. 12	Adv. 13	ADV. 14	ADV. 15 .....
ADV. 16	ADV. 17	ADV. 18	ADV. 19	ADV. 20 .....
	ADV. 21	ADV. 22	ADV. 23	

Name ..... Title .....

Company .....

Street Address .....

Town ..... Zone ..... State .....

EMPLOYEES
POSITIONS
SERVICES

THE CLEARING HOUSE

FOR SALE
OPPORTUNITY
EQUIPMENT

Published in each issue of Telephone Engineer and Management. Advertising forms close on 1st of month. Rates—15 cents a word except for Situation Wanted ads, which are only 10 cents per word. In figuring cost of ads, count each word of address in number of words used. All ads payable in advance. Minimum charge—$2.00. Special rates for display ads on request. Send copy and box number replies to **Telephone Engineer Publishing Corp., 7720 N. Sheridan Road, Chicago 26, Ill.**

EXCELLENT OPPORTUNITY

For one or two young men with five or six years experience in line and cable construction.

To work into a growing concern, possibly with a junior partnership in the future. Our principle projects are all located in Iowa, requiring travel with expenses paid.

Telephone Construction, Inc.

Telephone 662 P. O. Box 267

JEFFERSON, IOWA

SPECIALISTS ○ *Our 45th Year*

TELEPHONE FORMS

PRINTING • PLANOGRAPHING

YOUR ORDERS RECEIVE PROMPT ATTENTION

CULLOM & GHERTNER CO.

600 21st AVE., N. NASHVILLE 4, TENN.

POSITION WANTED

SITUATION WANTED — Executive Engineer, broad communications experience with Western Electric Company, Signal Corps & Private Industry. Familiar with planning, estimating and contracting. Contact Box 8821, c/o Telephone Engineer Publishing Corp.

BUCKEYE

Reconditioned

Federal Model "802"

The 802 has "Packaged Part" components that assure on the spot replacement. (Equipped with Type A.E. #24 dials when specified.)

Equipped with capsule type receiver and transmitter, the 802 is available for either automatic or manual service. Complete with new cords.

BUCKEYE
TELEPHONE & SUPPLY CO.

1250 Kinnear Road Columbus 8, Ohio

HELP WANTED

Attention

CABLE SPLICER

Opportunity for first class Cable Splicers.

Jobs open at top wage scales with vacation and Holiday pay.

Also extra incentive pay plan.

If qualified—

Call 4-2621, Topeka, Kansas.

NEALE CONSTRUCTION CO.

MANAGER for telephone system of seven dial offices in a good farming community in north central area. Must be capable of managing and supervising an all new million dollar plant, and employees associated. Give experience and qualifications. Address Box Number 8814, Telephone Engineer Publishing Corp.

ATTENTION SALESMEN: Unlimited sales opportunity for aggressive individuals with growing telephone supply house. Telephone experience helpful but not necessary. Very liberal commission. Territories open all over United States. Car Furnished. Telephone & Power Supply, Inc., Topeka, Kansas.

USE TELEPHONE ENGINEER AND MANAGEMENT'S CLEARING HOUSE

To locate workers—jobs—merchandise. A small ad covers the field.

SWITCHMAN—Opening for a qualified journeyman, permanent position, good working conditions, sickness benefit and pension plan. Answers should state age and details of past employment and experience. Write G. K. Fitzgerald, Plant Supt., Capital City Telephone Company, Jefferson City, Missouri.

WANTED — Capable unincumbered lady 30 to 45 years of age with experience as Chief Operator with good knowledge of local and toll operating practices for Traveling Chief Operator. Large territory in four southwestern states necessitating almost 100% traveling on company expense. Write Box No. 8819, c/o Telephone Engineer Publishing Corp.

HELP WANTED—Experienced repair man-installer. Permanent position, good working conditions. Group insurance, paid vacations and holidays. Write Box 8818, Telephone Engineer Publishing Corp.

BUSINESS OPPORTUNITIES

BUSINESS OPPORTUNITY for aggressive individual willing to make investment and assume complete charge of setting up sales force for young and growing telephone supply company. Furnish education, experience and personal information in reply to box 8782, Telephone Engineer Publishing Corp.

CABLE-SPLICERS' WIPING CLOTHS

WIPING THE VERTICAL JOINT

Showing the up-right cloth in action.

Formed-flexible finishing cloths (Patented); Flat finishing cloths; Catch cloths; Crotch cloths and Up-right joint catch cloths. Made of world-prize HERRINGBONE TICKING or imported English MOLESKIN. If your jobber cannot supply you write us for literature and prices.

GEO. E. WILLIAMS, Mfr.

3035 ALDRICH AVENUE, MINNEAPOLIS, MINN.

Cancer strikes 1 in 5

Strike back

Give

Your gifts to the American Cancer Society help guard those you love.

Your dollars support research in a hundred laboratories and universities . . . spread life-saving information . . . ease pain and suffering . . . provide facilities for treatment and care of cancer patients.

It is a sobering fact that cancer may strike anyone tomorrow: strike back today with a gift to the American Cancer Society. You may mail it, simply addressed CANCER, c/o your local post office.

American Cancer Society

FOR SALE

FOR SALE

48 Positions Toll Switchboard
2 Positions Chief Operator Desk
7 W. E. Supervisor Stands
68 Operator Chairs
3 Distributing Frames
2 Power Boards
W. E. 320 V Motor Generators
2 Westinghouse AT 50-ampere Rectifiers
1 W. E. Fuse Board
1 P. B. X. Battery and Generator Supply panel.
57 W. E. #5M Message Registers with Associated Relays.

Equipment is in service. Can be examined now. Will be available about July, 1953. For details write The Lincoln Telephone & Telegraph Company, Supervisor of Supplies, Box 633, Lincoln 1, Nebraska.

FOR SALE — #300-A, 12 Amp. 24 V. Flotrol charger good as new packed in original case ready for shipment. $400.00.

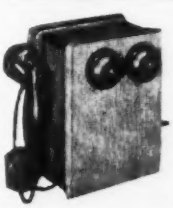
Kohler Electric Generator Plant 115 or 220 Volt A. C., 1.5 K. V. A. single phase. Motor overhauled, excellent condition. $400.00.

Mid-Texas Telephone Company, Box 293, Killeen, Texas.

EQUITY in 200 station magneto exchange. Cresote Poles, Cable Construction, 100 per cent, in county seat town of Perryville, Ark. Timing 31 towns, 43 miles from Capital City. Ideal setup for man and wife. Write O. D. Wilson, Perry County Telephone Co., Perryville, Ark., Box 66.

SPECIFY TELERING for

Dependable and Economical Telephone Ringing Power Equipment.
Engineered for complete satisfaction.
Manufactured by
TELKOR, INC. Elyria, Ohio



MAGNETO WALL

3 Bar. 1000 Ohm. @ $18.00
4 or 5 Bar. 1600 or 2500, @ $20

Prices F.O.B. Chicago, Ill.

INDEPENDENT TELEPHONE REPAIR CO.
2137 W. 21st St., Chicago 8, Ill.

Let A Low Cost CLASSIFIED AD in Telephone Engineer Publications Do The Job For You

PINS AND BRACKETS

Manufacturers of all sizes Locust Pins, Oak Brackets, Locust Bushings. REA Approved.

L. H. WIEBEL, INC.
Charlottesville Virginia

Cedar Poles
THE MAC GILLIS & GIBBS CO.
1615 E. Royall Place, Milwaukee 2, Wis.
Northern White and Western Red Cedar
Creosote and Pentachlorophenol Treatments

HERE'S A TOOL

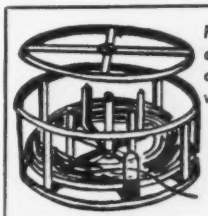
Costing Less — That Outdrills Heavier, More Costly Tools. It Costs Less Than a Repair On a Heavy Hammer. Outlasts Others. Drills Holes In Concrete Up To An Inch. Uses Standard Drillbits. Cost, only $27.50. Circulars Available.

HAMER-DRIL COMPANY
512 Greenwich St.
NEW YORK, NEW YORK

Rebuilt, Refinished
Loud ringing bells. 1000 or 2500 Ohm @ $8.00 each. With Condensers @ $9.00 Each.
F.O.B. Chicago, Ill.
INDEPENDENT TELEPHONE REPAIR CO.
2137 W. 21st St.
Chicago 8, Illinois

COMPLETE CENTRAL OFFICE —Available January 1954. 633 line common battery Stromberg-Carlson Universal Super Service Multiple Switchboard, new in 1946. Kellogg test cabinet, main frame, relay racks, 320 ampere batteries, chargers, power board, ringing machines, operators chairs. Price upon request. Write Qunicy Telephone Company, Quincy, Florida.

FOR SALE — 7 W. E. #52A Operator's Headsets. New, latest type with 289B plugs. $10.00 each. Address replies to Box 8820, c/o Telephone Engineer & Management.



For illustrated literature on this payout, take-up wire reel, write

Whitaker Reel Mfg. Co.
P. O. Box 1318
MONROE, LOUISIANA

you play it SAFE with Safety-Pulls

Just as important as the time and labor-saving advantages of Coffing Safety-Pull Ratchet Lever Hoists, is the way each one protects your men from injury, your equipment from damage.

Here's why:

Only the finest steel is selected for each part.

Hooks will not break or straighten out.

Dual ratchet and pawl will not slip — even if handle is accidently released.

Handle will bend before any other part is overloaded beyond safe limits.

Every Safety-Pull is tested at 100 percent overload.

Coffing Safety Pull Ratchet Lever Hoists. 10 roller chain models, ¾ to 15 tons. 2 coil chain models, ¾ and 1½ tons

Write for Bulletin U3SP — and the name of your nearest distributor. Make use of his broad experience and complete service facilities.

Quik-Lift Electric Hoists • Hoist-Alls • Mighty-Midget Pullers • Spur-Geared Hoists • Differential Chain Hoists • Load Binders • I-Beam Trolleys

COFFING HOIST COMPANY
Danville, Illinois

QUALITY • ECONOMY • SERVICE

TELEPHONE
• SWITCHBOARD
• INSTRUMENT
• OPERATORS
CORDS
by Commercial
NYLON • NEOPRENE
MERCERIZED COTTON

• TROUBLE FREE CONDUCTIVITY • LONG LIFE •

Write for Catalog and Samples

COMMERCIAL CORD and SUPPLY CO., Inc.
MANUFACTURERS OF CORDS FOR ALL MAKES AND TYPES OF TELEPHONE INSTRUMENTS
26 E. Main St., CLIFTON SPRINGS, N. Y.
Phone CLIFTON-SPRINGS 189

Time to Discard OLD-FASHIONED WAYS

Jacks . . props . . shores . . horses . . why fool with these obsolete methods of handling reels? DO IT THE MODERN, EFFICIENT WAY! Reel or unreel wire, cable, rope with

ROLL-A-REEL

Simple, strong, easily handled stand for your reels to save time and labor. Adjustable slots for variety of reel sizes.

Style A: 2,000 lbs. cap. 37.50
Style B: 4,000 lbs. cap. 75.00
f.o.b. Cincinnati

WRITE FOR DETAILS TODAY

ROLL-A-REEL
327 WEST FOURTH STREET
CINCINNATI 2, OHIO

(Continued from page 97)

munications products in Mexico was announced recently by A. L. Reese, National Marketing Manager of Motorola Inc., Communications and Electronics Division.

The new distributor will handle the complete line of Motorola communications products which include mobile and base station VHF and UHF two-way radio, the "Handie-Talkie" two-way radiophone, microwave, power line carrier, and electronic control equipment.

The new arrangement with Equipos Electronicos de Mexico will enable that company to serve the users of Motorola communications equipment in Mexico more efficiently, Reese pointed out.

New Product Briefs

TELEPHONE NUMBER SELECTOR: Berlin firm has developed answer to lazy man's call which eliminates necessity of dialing a telephone instrument. "Telerapid" is box-like instrument which can be placed on table or desk and connected to any automatic telephone. Names and telephone numbers are written on plaque on top of box. Caller simply moves pointer to number he wishes to call; lifts telephone and pushes lever on selector. Connection is then made automatically. The set can be attached to outgoing as well as inter-office circuits. Manufacturer: *Telerapid Telefon Gesselschaft, Endestrasse* 20, *Berlin-Wannsee/Westsektor.*

TRANSISTORS: Point contact transistors will be in full production and made available to industry in June, 1953, according to announcement by *Hydro-Aire, Inc., Burbank, Calif.*, subsidiary of *Crane Co.* This firm was licensed to produce transistors by Bell Telephone Laboratories about year ago and will be first Western source of transistors, the company said.

SPRAY GUN: Improved electric, airless spray gun — produced in England — is announced by *New Products Division of Taunton Pearl Works, Room* 604, *Statler Building, Boston* 16, *Mass.*

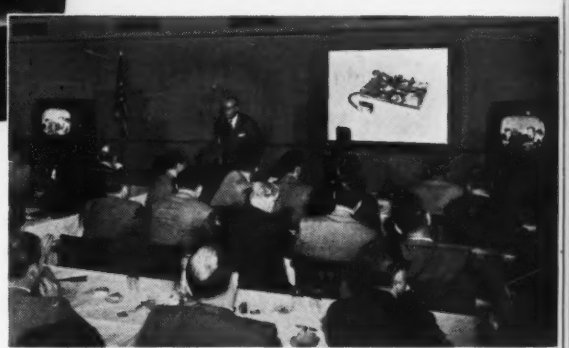
Equipped with universal motor (AC and DC), the trigger model "Egaspray" gun is not flameproof. May be used safely with liquid having flash point exceeding 90 degree Fahrenheit.

STROMBERG | CARLSON

transmitter

Published by the makers of famous XY Equipment

VOL. 1, NO. 12, MARCH, 1953



Telephone Conference Aided by Three Other Divisions

An outstanding example of teamwork within a single company was demonstrated at the Stromberg-Carlson Telephone Sales Conference held recently in Rochester.

The talents and products of all divisions were combined at one session, where top telephone personnel saw and heard an actual sales presentation being made by John Cornelius and Joseph Ottalagana to Mr. S. Fred Nixon Jr. and Mr. George Dinsbier of the Chautauqua and Erie Telephone Corporation, Westfield, N. Y.

Latest model Stromberg - Carlson 21" Television Receivers were placed for easy viewing in the conference hall, while a camera team and production experts from Stromberg-Carlson's station WHAM-TV covered the event in a closed-circuit live broadcast. A Stromberg-Carlson sound system was used by T. C. Thompson, Sales Manager, for running commentary during the entire two-hour telecast.

While television has been used before during sales conferences, it is believed that this is the first telecast of a bona-fide sale being attempted. We are even more confident that some sort of record was established, in that it was not necessary to go outside of the Stromberg-Carlson organization to bring this entire unique presentation to the conference.

F. W. Haupt, Telephone Advertising Manager of Stromberg-Carlson, joins three WHAM-TV men to monitor closed circuit telecast.

Chautauqua and Erie Telephone Corp. personnel: seated, l. to r., George Dinsbier, wire chief; Sam F. Nixon, President. Standing, Robert Dinsbier, engineer; Roderick A. Nixon, Commercial; Alastair Nixon, Traffic; S. Fred Nixon, Jr., General Manager.

STROMBERG-CARLSON transmitter

Advantages of Combining Local and Toll Traffic

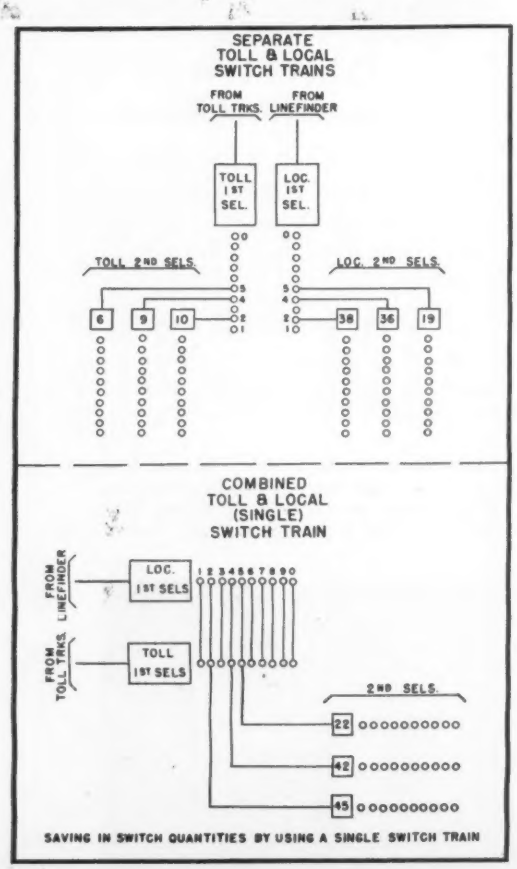
by Roy W. Jones, Chief of Circuit Design

The advantages of combining local and toll traffic are known in a general way to most telephone engineers and operating personnel.

The generally accepted practice in engineering step-by-step dial systems has been to provide a separate train of switches in the larger offices to handle toll calls. The purpose of the separate toll train was to provide improved transmission characteristics and to provide the supervisory features required for toll. 1000 lines was often used as the dividing line as to when a toll train should or should not be installed.

Can Be Combined

The present state of the telephone art is such that a single switch train, as used in the XY System, can provide for both toll and local service. Some of the factors involved were discussed in the November issue of this magazine.



SAVING IN SWITCH QUANTITIES BY USING A SINGLE SWITCH TRAIN

Where a single switch train is used, as in the XY System, the terminating traffic for stations in the office from the local first selectors, toll operators' selectors, and intertoll selectors is combined. This traffic is then completed over the common switch train of second selectors, subsequent selectors, and connectors. This combination eliminates the need for separate toll-intermediate selectors and toll connectors. This arrangement, used in all offices with toll service, provides the same high-quality service regardless of the size of the office.

Combination Yields Savings

Combining local and toll traffic yields a saving in selector switch quantities. Combining traffic into a single large trunk group permits the use of fewer trunks than when the traffic is divided between more than one trunk group. Example:

Traffic of toll 1st selectors to a group of toll 2nd selectors = 84UC
Traffic of local 1st selector to corresponding group of local 2nd selectors = 609 UC
Toll 2nd selectors required = 7
Local 2nd selectors required = 32
Total 2nd selectors required = 39
Combined traffic 1st selectors to 2nd selectors = 693 UC
2nd selectors required for combined traffic = 36

Combining the toll and local traffic to one switch train saves three selector switches for the same grade of service. Combining traffic from the other levels of the first selectors will result in corresponding savings in selector equipment. In an office with six groups of second selectors, with conditions similar to the example, the overall saving in selectors by combining will be 3 x 6 or 18 switches.

Offices large enough to require third selector ranks of switches will show corresponding savings in third selectors by combining the traffic, since similar traffic calculations will apply.

Offices with separate toll and local switch trains, if arranged to use local and combination connectors or all combination connectors in the connector groups, will require no more connector equipment than would be required with a single switch train. If, however, connector groups use separate toll and local connectors, some connectors may be saved by use of a common switch train for both local and toll. The difference is most noticeable in large-usage connector groups such as those serving P.B.X. line groups.

Further Possible Economies

The XY System, with the common switch train for toll and local traffic, is more economical of selector shelves than systems with toll and local switch trains. Since toll-intermediate selectors of *separate* toll trains mount on shelves separate from the local 2nd and subsequent selectors, additional shelves are required. The additional selectors required in the *common* switch train to accommodate the toll traffic can in many cases be mounted on the shelves already required for the selector quantities needed for the local traffic. In these cases, the cost of the shelves for the toll-intermediate selectors is entirely saved by use of the common switch train.

The saving in selector shelves by the combining of local and toll traffic naturally results in reduction of shelf mounting space required on the bays, and leads to the possibility of reduced floor space requirements.

Combining local and toll traffic provides more switches in a group for both classes of traffic. During peak traffic conditions for either class of service there is less chance of calls encountering an ATB condition.

Fewer *types* of selector switches are required in an office combining local and toll traffic. An interchangeability feature is available which permits switches to be changed from group to group to accommodate changing traffic conditions. Further, the reduction in types helps the maintenance personnel, for it means fewer circuits to learn and fewer maintenance routines to practice.

STROMBERG-CARLSON transmitter

MEET
Robert Seibert

Bob Seibert, Engineer-in-Charge of Test Engineering, is a person who lives his work and thoroughly enjoys it. This began at Wayne University in Detroit, with hitches as a Western Electric installer during summer vacations.

In July of 1941, Bob became a private in the Army Air Force and was sent to Hawaii. He was stationed there on that fateful day of the Pearl Harbor attack. Because of the desperate need for radar men after Pearl Harbor, Bob was one of those recruited from the Army to attend the 7th Air Force Radar School at the University of Hawaii. His work as a student was so fine that he was kept on as an instructor, and later became Officer in Charge of the school. He also received a direct commission as a First Lieutenant.

In 1945 Bob was sent to Massachusetts Institute of Technology to receive further training. After this he returned to Hawaii for the duration of the War.

At the end of the War, Bob joined Stromberg-Carlson's Engineering Department. Coincident with the greatly expanded program in dial equipment he progressed rapidly and is now Engineer in Charge of the Test Engineering section. In his spare time Bob teaches a course in XY Dial Systems at the Rochester Institute of Technology.

On his brief return to the States during the War, Bob "acquired" a wife, Betty Ann Berrie, and is now the proud father of Mark, age 4. In what little spare time he has, Bob is interested in several outdoor sports. He is also a member of the AIEE and a former associate member of the IRE.

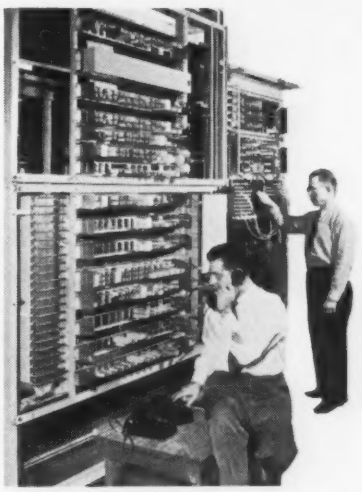
Test Engineering Section

The Test Engineering Section at Stromberg-Carlson is a strong contender for the title, "Most Versatile." As Robert Seibert, Engineer-in-Charge, expressed it, "Some jobs can be classified, and fall naturally within certain sections of the Engineering Department. Those that remain come to us!"

Major responsibilities of this section, organized in its present form in 1946, are: writing circuit descriptions; relay assignment (selection of the right relay for a specific function); development testing, where new designs from Research, the Circuit Group or the Apparatus Section are further analyzed with emphasis on product development and standards; and Circuit Plate approval—approval testing of the first production sample of new switching equipment.

The Relay Assignment group (at left); a test information desk (right).

After this first sample of new switching equipment is approved, Quality Control assumes responsibility for production models. To further the excellent liaison between design and production, random samples of equipment are brought into the Test Section for exhaustive tests above and beyond specifications.



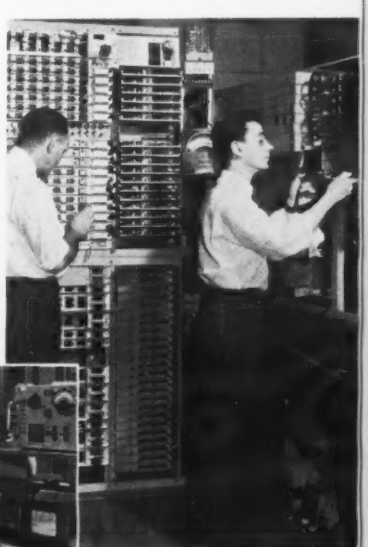
Newly designed circuit gets exhaustive lab test before field testing.

The XY Systems Training School is presently under the guidance of the Test Engineers. Bob Seibert, with his experience in instruction, was the man chosen to start this school; the pattern established has worked well and has continued over the years.

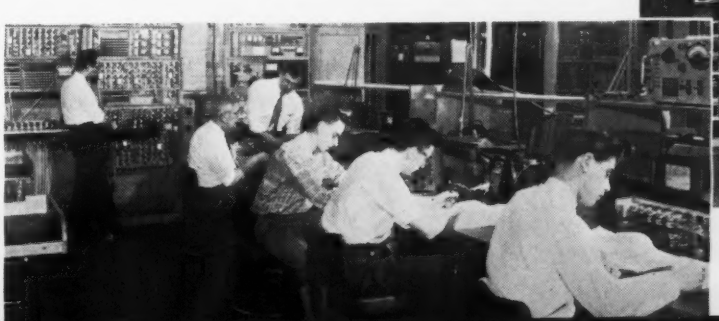
Life-testing is another important assignment.

"Let's not forget," Bob added, "the inquiries from customers asking advice. We like nothing better than finding a solution for a job that couldn't be done."

Life-testing XY Switches and relays (at left); contacts (right).



(Below) In the rear is part of fixture used for analysis of sample circuit plates.



STROMBERG-CARLSON transmitter

Lufkin Telephone Exchange has New System in New Home

It all started here . . .

These men brought XY to Lufkin: (Seated) Dr. L. H. Denman, President of the Exchange; (standing, l. to r.) Carl Price, Stromberg-Carlson representative; K. W. Denman, Ned D. Shands, Dr. Byford Denman, and Marion A. Clay, executives of Lufkin Telephone Exchange.

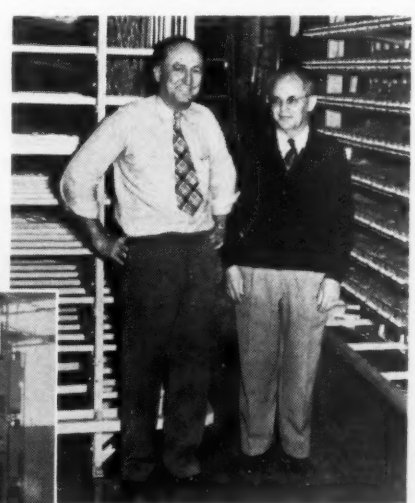
The Denman and Mantooth families in 1900 brought the first telephone exchange to Lufkin, Texas—a 100-line magneto switchboard, served entirely by open wire. Now, 53 years later, this manufacturing, lumbering and commercial center of East-Central Texas has greatly increased in size and importance. Members of these same two families still operate the telephone company. They have shown their faith in the Lufkin of the future by installing over 4,200 lines of Stromberg-Carlson XY Dial, to better serve the people.

Mrs. D. C. Hucherson, a present stockholder, made the first call over the original magneto board to Dr. P. R. Denman, a director today. What changes these people have seen! In 1905 they saw the first outside cable installed, as poles near the central office could no longer bear the load of crossarms. By 1910 a good part of the cabling was complete. In 1924 the most efficient manual board then devised — Stromberg-Carlson Super-Service—was put in operation. And now in 1953 a conversion to Stromberg-Carlson XY, with 6,000 terminals, 12 positions of No. 3 Toll Board and three flat-topped information desks, all housed in a beautiful new modern building.

Mrs. Townsend is another resident who has lived the history of the company. On the original magneto board she had the number "3"; also "3" on the common battery board. As the oldest living person in Lufkin with the same telephone number at the cut-over to dial, she placed the first call over the new system to Dr. Granville Wright, mayor of Lufkin.

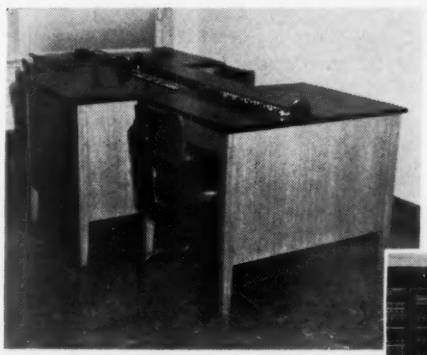
The present board of directors are: Dr. L. H. Denman, President; Dr. B. H. Denman, Secretary; Mr. F. K. Denman, Attorney; Mr. N. D. Shands, Jr.; Mr. Harry T. Bowers—all of Lufkin; Dr. P. R. Denman of Houston and Mr. Thomas O. Shelton, Jr. of Dallas. All common stock is held by members of the families of the original founders.

Mr. Jean Shotwell was sercetary-treasurer and general manager from 1923 until his retirement in May

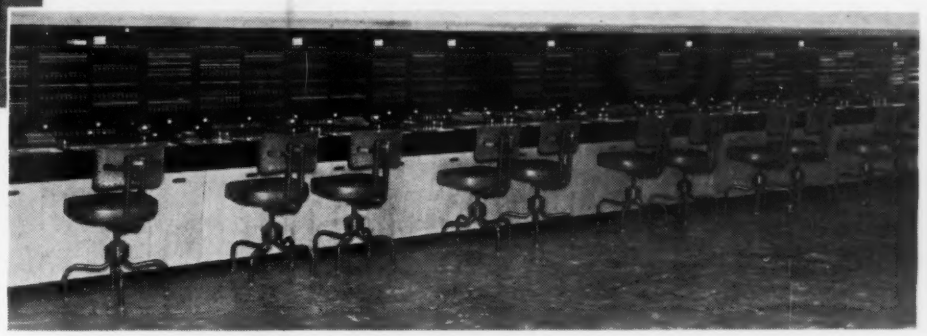


Rex Atkinson, Plant Superintendent at Lufkin (left) and Earl Alexander, Stromberg-Carlson installation foreman.

Part of the XY equipment room at the Lufkin Telephone Exchange.



Modern 3-part flat-top information desks.



12-position Stromberg-Carlson No. 3 Toll Board is engineered to fill present and future needs at Lufkin.

1952. Marion A. Clay, formerly a Sales Engineer with Stromberg-Carlson, assumed managership of the properties at that time. Mr. Rex Atkinson, Plant Superintendent, has been with the company since 1928.

Lufkin has been well served by its family-owned company. Census figures: 1910 — 2,749; 1930 — 7,311; 1950—15,147 point toward a prosperous future. Major industries such as Lufkin Foundry & Machine Co., the Southland Paper Mill, to mention just two, have made this future certain. Who knows what further growth and progress lies ahead.

Salmon, Idaho, looks toward the future

At midnight last November 15, the latest in a number of progressive steps was made by the Lemhi Telephone Company of Salmon, Idaho.

Manager L. B. McGivney pulled the "picks" and cut over the company's 950 stations to Stromberg-Carlson XY Dial operation. Mayor Gerald Butler of Salmon made the first call.

The Lemhi Telephone Company was formed in 1913, operating on 160 miles of pole line between Salmon and various points on the "Gilmore and Pittsburgh R.R." In 1914 the Lemhi Telephone Company purchased three other telephone companies operating out of Salmon and consolidated their holdings. From that time until 1941 it was a constant job of rebuilding and expansion. In 1941 Salmon was converted to common battery operation with 389 stations. A few years after World War II, it became apparent to Mr. McGivney that his present switchboard could not take care of the growth of Salmon and the demand for telephone facilities. Therefore, in July of 1951, he awarded the contract to Stromberg-Carlson Company to furnish and install an XY Dial switchboard.

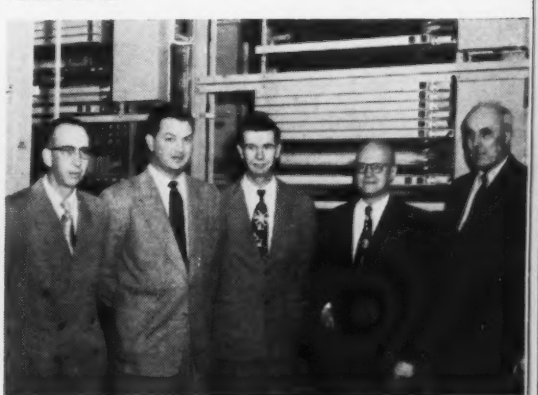
On the afternoon preceding the cut-over, an open house was held so the citizens of Salmon could have a prevue of the dial system. Mr. F. Barsalou, Wire Chief, explained the functions of the equipment.

Present at the cut-over were Mr. F. L. Steinbright and Mr. W. E. Bird of the Northern Pacific Railroad Company (parent company of the Lemhi Telephone Company); Mr. N. L. Richmond and Mr. C. E. Davis of the Mountain States Telephone Company; and prominent citizens of Salmon.

F. Barsalou, Wire Chief, Lemhi Telephone Co.

(L. to r.) L. B. McGivney, Manager; C. V. Henley of Stromberg-Carlson; F. Barsalou, Wire Chief; F. L. Steinbright, Superintendent of Communications and W. E. Bird, Telegraph Supervisor, both of Northern Pacific R. R.

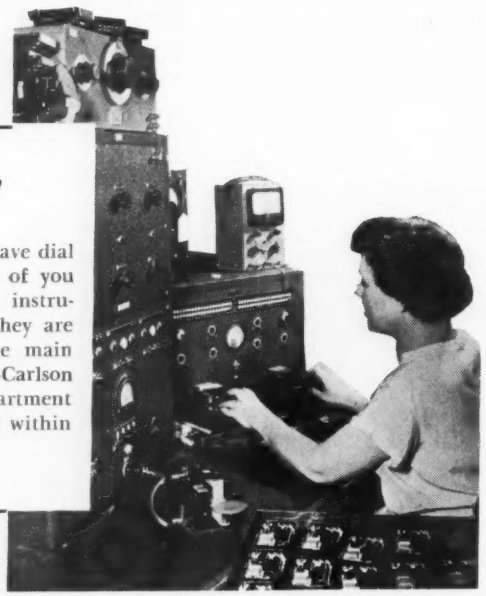
Mrs. L. B. McGivney tries out the new Stromberg-Carlson Toll Board at Salmon, Idaho.



STROMBERG-CARLSON **transmitter**

FACTORY TRIP

Some of our readers may not yet have dial operation in their plans. But all of you are interested in good telephone instruments—what goes in them, how they are made. This month let's cross the main aisle in Building Four at Stromberg-Carlson to the Telephone Instrument Department where all the parts—made entirely within the plant—are assembled.



Exhaustive electrical tests for Coil-and-Capacitor Units

Owen Howk, department foreman, began assembling telephones an even dozen models ago. He remembers when lots of people refused to order handset instruments because they didn't want anything to do with those foreign "French" affairs.

His assistant, Joseph Vella, who has an even longer service record, leaned across the desk.

"There were forty of us in those days. Every man had to know several jobs and most of us could pinch hit anywhere along the line. Of course, we didn't get out as many phones then!"

Three supervisors share departmental responsibilities. Lawrence Allen has charge of assembling telephones and ringers. He told me that the complete changeover to the new 1400 Telephone was accomplished within a matter of days. The present method of ringer assembly and tuning lends itself to more accurate checking.

The unique coil and capacitor assembly—proved under water during an entire USITA Convention—is under the watchful eye of Edith Karnisky.

"We complete several thousand units a month," she told me. "That means we all have to put our shoulders to the wheel. Our good record—100% of schedule or better on all but four days this last quarter—is partly because our expeditors, Frank Nellis, Edward Murphy and Walter Newman, keep the parts flowing in from the machine departments."

Harry Adams supervises the assembly of receivers and transmitters. Production is matched to the instrument schedule.

Two veteran employees reminisced about the changes they had seen as the telephone art moved forward. Joseph Heslip picked up a ringer used in old magneto bell boxes.

"This was pretty good in its day. Of course it didn't come up against the problem of harmonic frequencies. Testing used to be a matter of 'Does it, or doesn't it?'" He showed me the intricate electronic measuring devices used today to guard against off-frequency; also pointed out how eyes are still very important to note the spacing between travel arcs.

Orville (Whitey) Simmons explained the details of potting capacitors to prevent failure under conditions of extreme moisture.

"It's a sticky job, and now we've found a way to make it stick even better. Guess I'm stuck with it!"

The 125 people in the department regularly turn out their quota of telephones of all types each day.

The heart of the telephone

Mechanized assembly line — 1400 Series Telephones

Transmitters are assembled in a dust-proof, air-conditioned room.

INDEX OF ADVERTISING

Acorn Insulated Wire Co. 76
Albert, J. E. 96
Allied Chemical & Dye Corp.
Barret Division ..... —
Alphaduct Wire & Cable Co. 73
American Steel & Wire Co. 59
American Structural Products Co. ..... —
American Tel. & Tel. Co. 64,65
Ansonia Wire & Cable Co. 27
Armstrong Cork Co. 80
Automatic Electric Sales Corp. 28, 56, 53, 74, 80

Barber-Greene Co. ..... —
Bashlin Co., W. M. 97
Berry & Co., L. M. 2
Bishop Manufacturing Corp ..... —
Blaker, A. W. ..... —
Buckeye Telephone & Supply Co. .. 83, 100
Buckingham Mfg. Co. ..... —

Cable Spinning Equipment Co. 63
Calculagraph Co., Inc. 19
Chance Co., A. B. ..... —
Chapman Chemical Co. 94
Chase Brass & Copper Co. ..... —
Churchill Cabinet 90
Cleveland Trencher Co. ..... —
Coffing Hoist Co. 102
Commercial Cord & Supply Co. 102
Communi-Catering 96
Connecticut Telephone & Electric ..... —
Cook Electric Company ..... —
Copperweld Steel Co 25
Crane, Carl Co., Inc 96
Cullom & Ghertner 100

Daubendiek, C. H. 96
Davis Construction Co. 96
Donnelley & Sons, R. R. 109
Du Pont de Nemours Co., E. I. 21

Electric Products Co., The ..... —
Electric Storage Battery Co. 7
Ericsson Telephone Sales Corp. 82

General Cable Corp. ..... —
General Insulated Wire Works, Inc. 78
General Telephone Directory Co. 112
Gould National Battries, Inc. 3
Graybar Electric Co. 5
Greenlee Tool Co. ..... —

Harris-McBurney Co. 96
Harrison Construction Co. ..... —
Henkels & McCoy 96
Highway Trailer Co. 55
Highway Unility Co. 96
Hill, Cyrus G. 96
Homelite Corp. 17
Hubbard & Co. ..... —

Independent Telephone Repair Co. 101
Indiana Steel & Wire Co. 20
Intrnational Harvester ..... —
International Standard Electric Corp. 72
Jaeger Machine Corp ..... —

Ka-Mo Tools, Inc. ..... —
Katolight Corporation ..... —
Kearney Corp., Jas. R. ..... —
Kellogg Switchboard & Supply Co. 12, 13, 14, 15, 88, 89
King, W. T. 96
Klein & Sons, Mathias 58
Koiled Kords 86
Koppers Company 91

Leich Sales Corp 52, 53
Lindsay Tel. Supply Company 76
Line Equipment Co. ..... —
Line Material Co. — A McGraw Electric Co. Div. 79
Loomis Advertising Co. 24
Lorain Products Corp. 95

MacGillis & Gibbs Co., The 100
Mahood, Edwin T. ..... —
McCabe Powers Auto Body Co. 37
Midwest Utility Co. 96
Mitchell, Jay G. 96
Montana Pole & Treating Plant ..... —
Moran, John J. 96
Murer & Smith 96
Moss, T. J. Tie Co. ..... —
Mutual Liquid Gas Equip. Co. ..... —

National Carbon Co. ..... —
Natco Corp. 109
National Telephone Supply Co. 111
Neale Construction Co. ..... —
Neale, D. J. 96
North Electric Mfg. Co. 22, 23

Onan & Sons, Inc ..... —
Overton Co., S. E. ..... —

Page & Hill, Inc 80
Paragon Electric Co. ..... —
Penline Service 96
Peterson Engineering ..... —
Philco Corp. 11
Porcelain Products, Inc ..... —
Porter, H. K. ..... —
Power Equipment Co. ..... —
Premax Products, Inc ..... —

R. T. & E. Co. 8
Ray-O-Vac Co. ..... —
Raytheon Manufacturing Co. 18
Reilly Tar & Chemical ..... —
Reliable Electric Co. 45
Republic Creosoting Co. ..... —
Roll-A-Reel 102
Runzel Cord & Wire Co. 94
Ryan, F. B. 96

Schauer Mfg. Co. 81
Sentinel Company, The ..... —
Seymour Smith & Son, Inc 28
Sherron Metallic Corp 28
Sloan, Cook & Lowe 96
Southern Engineering ..... —
Stahl Metal Products ..... —
Stromberg-Carlson Co. 30, 31, 70, 71, 84, 85, 92, 93, 103, 108
Supreme Inc. ..... —
Suttle Equipment Co. 90, 96

Taylor-Colquitt Co. 83
Tel-E-Lect Products, Inc. ..... —
Telephone Advertising Inst. ..... —
Telephone Answering & Recording Corp. 26
Telefon Fabrik Automatic A/S ..... —
Telephone Engineering Corp. 96
Telephone & Power Supply Co. 66
Telephone Repair & Supply Co. ..... —
Tele-Wire Suply Co., Inc. ..... —
Telkor, Inc., ... 101
Texas Cresoting Co. ..... —
Thompson Chemicals Corp ..... —
Trowbridge Construction Co. 96

U. S. Independent Tel. Assoc ..... —
U. S. Steel Corp.
American Steel & Wire Div. 59
U. S. Steel, Coal Chem. Div. 67
Utica Drop Forge & Tool Corp. ..... —

Vannort, B. O. 96
Vulcan Electric Co. ..... —

Wall Mfg. Co. ..... —
Western Electric Co. 69
Williams, Geo. E. 100
Whitney Blake Co. 61
Wyoming Valley Equipment Co. ..... —

York-Hoover Corp. (Body Div.) ..... —

when you talk to subscribers

When you have a public relations message you want to deliver with lots of power and just the right tone— You are invited to use our wide experience and many facilities for printing general business literature of every kind. Please consult us at any time. No obligation.

The Lakeside Press

R. R. Donnelley & Sons Company

350 East Twenty-second Street
Chicago 16, Illinois

Printers · Binders · Engravers · Lithographers

SINCE 1889

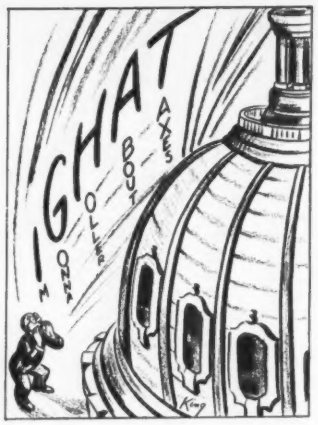
NATCO

CLAY CONDUIT

The proved and standard Protection for Underground Telephone Cables.

Cheapest in the long run. Highest quality and a full line of shapes.

Natco Corporation
formely National Fireproofing Corp.
327 FIFTH AVE., PITTSBURGH 22, PA.



There's an IGHAT ("I'm Gonna Holler About Taxes!") movement under way all over the country these days — a movement that began in the grass-roots and one which is beginning to make its voice heard in Washington, D. C.

THE BACK OF THE BOOK

By JOHN G. REYNOLDS

"Read, Write and Yell"

JOHN STUART of Chicago, chairman of Quaker Oats Co., took a long, serious look at taxes and became convinced that too many people believe the "*rich and the corporations pay the taxes.*"

Mr. Stuart made a survey in Quaker's Cedar Rapids plant. He found that the average wage of employes there is $3,400 a year—but $1,100 of it goes into taxes, and $800 of that "gouge" is in hidden taxes.

So he has founded a nonsecret fraternity called "I'm Gonna Holler About Taxes"—shortened to "IGHAT" in this age of initials.

The only qualification for applicants is to be able to read and write and yell against high taxes. The initiation ceremony consists of the applicant's writing a letter to his congressman and senator explaining why he believes taxes are too high.

Mr. Stuart believes that when the "voice of the taxpayer" is heard in the halls of Congress something will be done.

If the effort succeeds only in informing many people that hidden taxes soak the poor in secret, while the rich are being soaked openly by high income taxes, it should make the idea of governmental economy more popular.

Women Fill Gap in Engineer Ranks

THE SHORTAGE of engineers is being solved, in part, by the entry of an increasing number of women engineers into jobs heretofore held by males.

The movement got a great push a short time ago when some 30 women engineers were accepted into membership in the Western Society of Engineers. William V. Kahler, president, Illinois Bell Telephone, was then president of the society. He gave a speech entitled "*The Welcome Sign Is Out for Women Engineers.*" The women came a-running.

Membership in the society is not only a signal honor but the many educational activities along engineering lines is a great advantage to a young engineer.

Up to that time the society had but one woman engineer member, Georgiana H. Peeney. She is assistant chief engineer of Lansing B. Warner Inc. Last year she received an award as an outstanding alumnus of Northwestern University.

An indication of how wide is the field for woman engineers can be seen in the fact that of 105,000 woman college graduates last year, only 77 were graduate engineers.

"Heard-Everything" Department

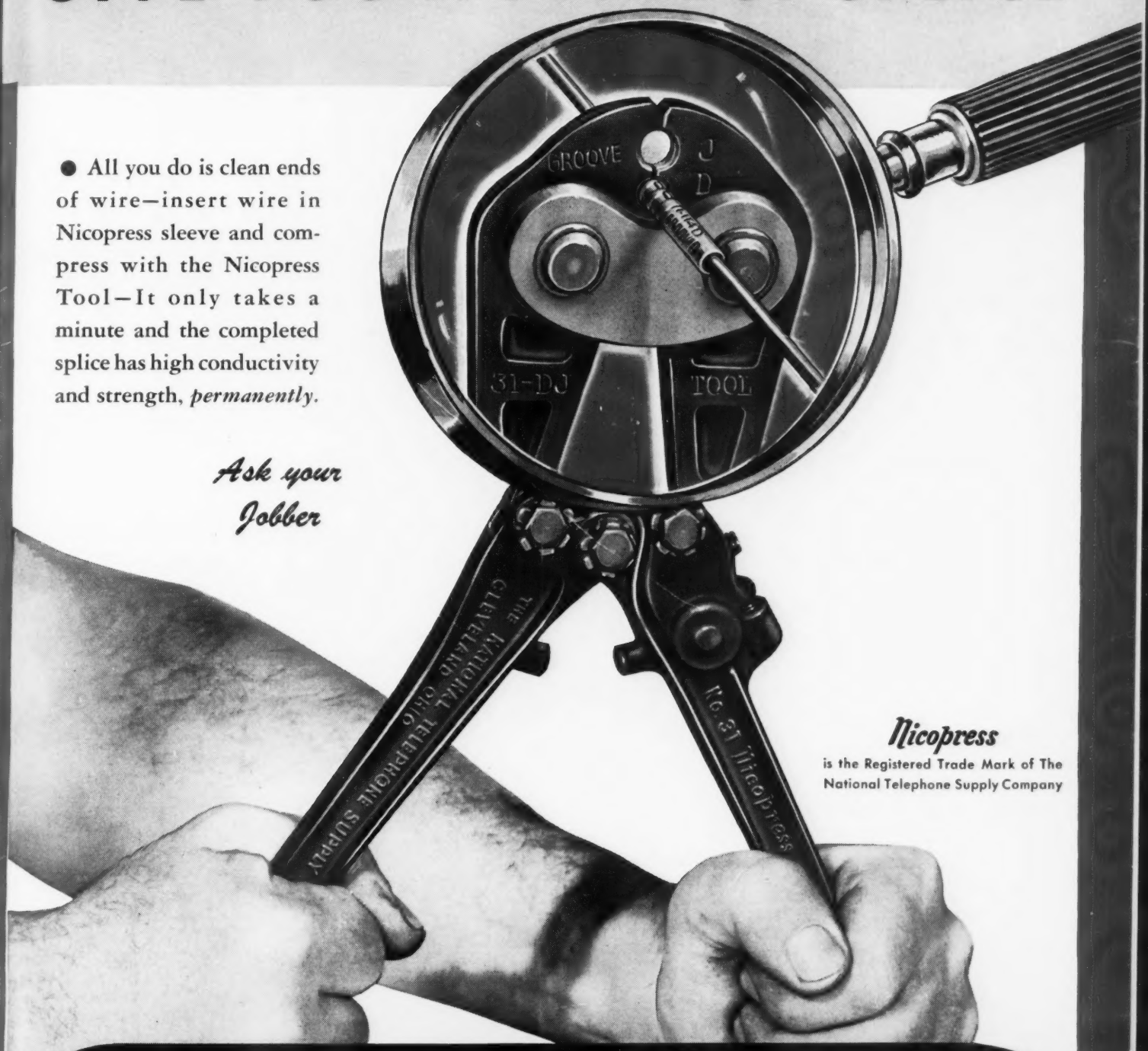
HERE'S ONE for the books! A Connecticut legislator has worked up a bill to *tax the tall, the hefty and anyone wearing size* 11 *shoes or larger.* When someone asked "Why?"—sponsor Wood Conway said the purpose was to "throw a greater tax burden upon the big and the strong and those persons who, because of breadth of beam, weight and extreme size of their boots, occupy more territory and cause excessive wear upon the public walkways" . . . You take it from there!

Swoosh!

JET POWERED airliners are soon to flick across the Atlantic between New York and London. Travelers, says a publicity release, will be able to breakfast in New York and five hours later have a spot of lunch in London.

How fast people can get from one place to another, often we'd guess without having much reason, is getting to be sort of "old hat" news-wise. But a return trip, London to New York, by jet, does offer a twist that's worth mentioning. Coming back at 600 miles an hour would let you move with the sun. Leaving London at noon, local time, you would arrive in New York only 40 minutes later, local time. Also, letters mailed in London in the morning would reach Los Angeles in the afternoon of the same day. That's a good thing to remember if you find yourself in London and want to write someone in Los Angeles, in a hurry.

THE *Nicopress* SLEEVE AND THE NICOPRESS TOOL GIVE YOU A PERFECT SPLICE



● All you do is clean ends of wire—insert wire in Nicopress sleeve and compress with the Nicopress Tool—It only takes a minute and the completed splice has high conductivity and strength, *permanently.*

Ask your Jobber

Nicopress
is the Registered Trade Mark of The National Telephone Supply Company

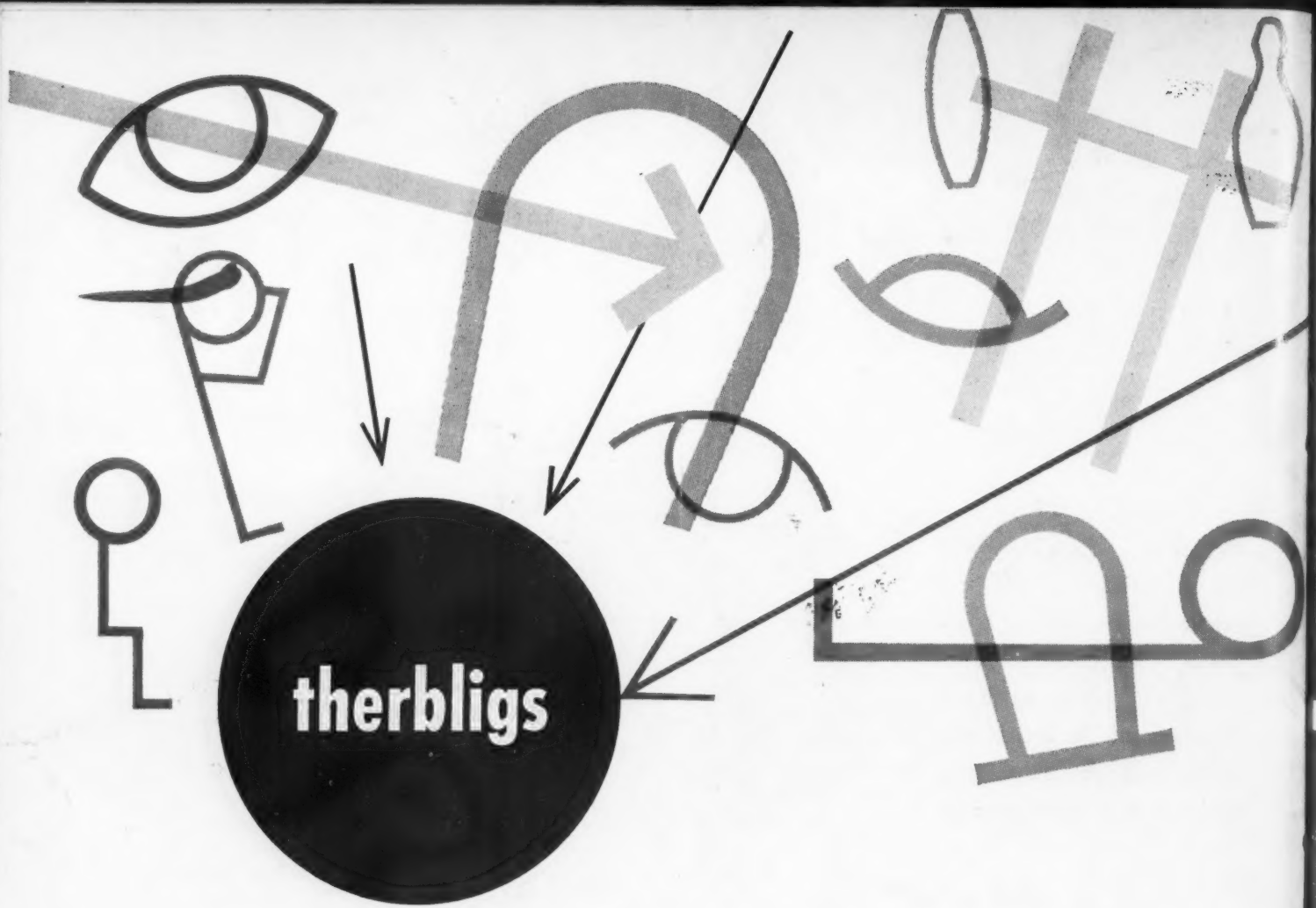
The National Telephone Supply Company

5100 SUPERIOR AVENUE • CLEVELAND 3, OHIO

Canadian Mfr.—N. SLATER CO., LTD., HAMILTON, ONT., CANADA

Export Distributor—INTERNATIONAL STANDARD ELECTRIC CORP., NEW YORK, N. Y.

THE NATIONAL TELEPHONE SUPPLY COMPANY



Frank B. Gilbreth had an almost insatiable desire to "find a *better* way." In seeking ways to improve industrial methods he analyzed the procedures followed by many workers at various tasks. He observed that certain elementary subdivisions within a cycle of motion seemed common to all types of jobs. Pursuing this thought, he isolated these eighteen elements of motion and called them "therbligs." By reducing the actions of workers to therbligs he was able to study and compare them and chart a more efficient and profitable procedure for each job by eliminating wasted motion.

Since 1936, our Company has constantly sought a *better* way. We have made many forward steps in the directory publishing field and we have been responsible for many "firsts." But, we shall always be seeking a *better* way. Improvements in methods that will provide the telephone companies which we serve with increasingly accurate and more profitable telephone directories.

To be sure that your subscribers will receive an accurate, attractive directory and that your Company will make the greatest profit from its directory this year, next year and for years to come, we urge you to employ our Complete Directory Service Plan.

Get the benefits and the profits which accompany a *better* way!

GENERAL

TELEPHONE DIRECTORY COMPANY

1800 Busse Highway	*604 Pine Avenue*	*1415 Avenue M*	*N. 108 Washington*
Des Plaines, Illinois	*Long Beach, California*	*Lubbock, Texas*	*Spokane, Washington*
VAnderbilt 4-2164	*Telephone 6-7221*	*Telephone 2-6330*	*Telephone MAdison 8644*

NATION-WIDE PUBLISHERS OF TELEPHONE DIRECTORIES

FOR FULL INFORMATION REGARDING OUR COMPLETE DIRECTORY SERVICE PLAN, SIMPLY TELEPHONE COLLECT OR WRITE TO OUR NEAREST OFFICE